

D5.1 Final evaluation report

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Information about the deliverable

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Executive summary

This report shows the results from the evaluation of the 3C4LIFE project using a mix-method approach, that combines quantitative and qualitative data analysis. The main aim of the evaluation was to provide research evidence about the impact of an innovative policy measure (the use of the digital platform called teach4life), on teachers' collaboration and motivation for career advancement and competence development. To this end, questionnaires were distributed before using the platform and 3 and 6 months after. In addition, 30 case studies were carried out in order to develop a better understanding of how the platform had been experienced by teachers, which aspects were best appreciated and if there were any suggestions for improvement.

Quantitative data show that the sample of teachers taking part in the field trials were highly motivated from the very beginning, what makes it difficult to increase these already high values. Fortunately, the motivational dimension seems not to be affected and kept stable along the 6 months that our study lasted, which could be considered a positive outcome.

In relation to participants' views about the importance of teachers' collaboration, results show that collaboration was highly appreciated. In general, the perception of the benefits of collaboration was quite positive, with average values greater than 4 for all countries and above 3.5 for Portugal. Those values improved after the use of the platform showing significant gains in Portugal and Turkey. However, it is interesting to note that teachers' perceptions about the barriers for teacher collaboration were kept along the time, suggesting a need to address those barriers in order to improve teachers' opportunities for collaboration.

Additionally, results from the analysis of the impact of the platform show an increase in teachers' self-efficacy related to the use of innovative teaching materials and approaches, as well as an improvement in their knowledge about different career pathways. The increase in teachers' self-efficacy and knowledge about opportunities for career advancement shows significant gains in Spain, Portugal and Turkey, where the platform was offered in the context of a specific teacher professional development course or in the case of Turkey, where teachers were provided with ongoing support during the use of the platform.

These outcomes have important implications for educational policies showing the importance of accompanying the introduction of innovative teaching resources with specific teacher professional development to ensure a significant improvement in teachers' competences, beliefs and practices.

Results from the 30 case studies show that the platform resources best appreciated by teachers are those offering classroom examples that can be easily implemented in daily teaching, along with specific guidelines for the development of teaching competences. In addition, teachers considered that the platform expanded their knowledge and views about the teaching career, as well as their opportunities for professional advancement and they highly appreciated videos showing inspiring personal stories with key information about how to access a wide range of different positions within the teaching career. In

relation to the features of the platform designed to promote teacher collaboration, participants consider that forums are not the best way to facilitate teachers' exchange of experiences and materials, since they are linear, static and sometimes present barriers for an effective communication. In this respect, they would prefer face to face collaboration.

Finally, when teachers were asked about the main barriers for teachers' collaboration, career advancement and competence development, they refer to the lack of time, a huge and increasing bureaucratic workload, the lack of social and professional recognition, the importance of paying attention to authorship attribution when encouraging the exchange of teaching resources among teachers and the need to provide incentives and to allocate specific time and space for teacher collaboration and professional development, during the school schedule and their working time.

Main Report

Background and key information

The objective of this final report is to present and discuss the analysis of the main evaluation data in order to measure the impact of the measure on the participant teachers and to develop a better understanding of how the platform has been implemented and used in the different partner countries and the implication of such use. Finally, the critical analysis of these results will allow us to draw some recommendations for exploitation and scaling up of the policy measure.

Nowadays there is a big challenge in keeping teachers motivated and willing to continuously update teaching competences and methods to better adapt to current educational demands. This motivation includes a feeling of empowerment and autonomy: avoiding a feeling of being isolated or locked into one position, and able to recognise one's own strengths and/or further develop new competences and enrich one's professional experience. It also requires the sense of passion for the role of the teacher to be kept alive.

On a general level, the project addresses policy priorities related to improving teachers' careers, in terms of rethinking career structure and guidance and also empowering teachers to better navigate the career system. In order to address this policy priority, the project has developed a digital platform aimed at improving teachers' motivation, collaboration, competence development and career advancement. The platform has been specifically designed to fulfil the project's objectives exhibiting a particular set of key features, that include motivational triggers, multi-directional pathways for teacher careers and elements to support teachers' cooperation and community building.

In particular, the project seeks to analyse the causal link between the motivation for long-term involvement of STEM teachers in occupational advancement programs and three innovative features of the digital platform. The research hypotheses are:

- A sequential arrangement of motivational triggers increases the involvement of STEM teachers in occupational advancement programs.
- Multi-directional advancement perspectives raise teachers' motivation to shape their best personal path as a teacher.
- Targeted community-building features increase teachers' participation in Communities of Practice.

In order to prove these hypotheses, it will be necessary to collect data about:

1. Teachers' engagement with the platform (number of visits to the platform, time spent on particular sections/elements, number of downloads of key materials...).
2. The effect of the platform on teachers' motivation, competence development, knowledge about different career pathways and willingness to cooperate with peers through community of practice.

3. Teachers' experience with the platform: how interesting or useful they find it, what they value most, what they miss and if there is any suggestion for improvement.

Data related to the first point can be drawn from the use of the platform and is closely related to WP2 (platform design) and WP8 (quality assurance).

WP3 is responsible for the experimentation method and protocol and will provide research evidence to address the second and third points using a mix methods approach that combines quantitative research instruments and qualitative ones (interviews and open questions). Detailed information about the experimentation protocol and how all the evaluation instruments have been developed and validated can be found in D3.1 and D3.2 (evaluation questionnaires, protocol guidelines and framework for the case studies).

In order to prove the initial research hypothesis, the following research questions has been addressed:

1. What is the impact of the 3C4life platform on teacher' perceived relevance of and motivation for the teaching career?
2. What is the impact of the 3C4life platform on teachers' perception of teacher collaboration and community building?
3. What is the impact of the 3C4life platform on teachers' perception of competence development and self-efficacy?
4. What is the impact of the 3C4life platform on teachers' knowledge about the different career pathways they can navigate to shape their best personal path as a teacher?
5. How is the 3C4life platform design (structure, content, triggers, career pathways and collaboration features) perceived by teachers and how it can be improved?
6. To what extent does the 3C4life platform design (structure, content, triggers, career pathways and collaboration features) support teachers' motivation, collaboration, competence development and career advancement?

Research questions 1, 2, 3 and 4 will be answered on the basis of the quantitative data coming from the analysis of pre, intermediate and post questionnaires in the six partner countries.

Research questions 5 and 6 will be responded on the basis of the qualitative data coming from the national case studies.

Quantitative analysis and discussion of the main results

Short overview of the experimental design and data gathering

In order to ensure a dependable and valid assessment of the impact of platform on teachers' professional growth and competences, and respond to the research questions above mentioned, comprehensive experimentation protocol was developed by WP3, aligning with the requirements of all partner countries and following a preliminary co-construction of the main questionnaire.

The evaluation concept herein presented, as previously mentioned, makes use of a mixed approach, that is, a part of quantitative analysis and another part of qualitative analysis. This methodological combination allows for triangulating the results and obtaining a much richer insight than using either of the two separately. Additionally, as we have observed, the results from both approaches are coherent and complement each other or converge. The study of statistical analysis and inference presented in this section aims to contribute to answering the research questions related to the motivation (MOT) of teachers and their attitudes and perception about collaboration (benefits and barriers, COL and BAR-COL), knowledge about the teaching trajectories and career (KNW-CAR) and their perception of teaching competence (SELF-EFFICACY)

Overview of the quantitative questionnaires

Although it has already been described previously in others deliverables (D3.1 & D3.2) in the following lines, we will briefly outline some of the characteristics of the questionnaire and its dimensions, as some highlights of validation. This will help us understand the quantitative analysis presented in this report. "In Figure 1, shows the main steps in the development of the instrument.



Figure 1. Main steps for the development of the questionnaire

Experts taking part the early stage of validation and development were part of the consortium project. They are highly recognized in her/his field of expertise (Science and Math researchers and educators and educational Science researchers) and hold a deep view of the project aims and research question planned for the measurement. This cross-national involvement assured a later phase of translation and adaptation of the items taking into consideration language and national adaptation. A first version of the questionnaire (in English) was translated to Spanish and piloted in a cohort of in-service

and pre-service teachers (N= 162 and 183). Afterward, with subsamples from the pre-test, the validation analyzes were confirmed in the cross-national sample.

Table 1 shows some parameters related with that phase and the internal consistency of the instrument and scales used. The minimum acceptable value for Cronbach's alpha coefficient is 0.70 although in some studies these values are accepted below that value. Using a cohort of in-service teachers from different countries, the values for scales are coherent, reinforcing the idea of consistency and reliability of the instrument for the proposed measurement purposes. The domain on “Competence” has been defined within the scales Self-efficacy (SE), the domain “**Career**” is aligned with the scale Motivation and Knowledge about Career (motivation includes some items for intrinsic motivation and extrinsic motivation) and intersected with different items of other scales as Knowledge. The domain “**Collaboration**” has been studied with the scales of positive issues of collaborations and barrier perception for collaboration.



Figure 2. Domains of measurement aligned with the teachers' beliefs and attitudes towards different aspects of measurement (key issues in the evaluation concept)

Table 1. Scales and Cronbach alpha for a cross-national sample of teachers

Scale	Cronbach alpha
Motivation (MOT)	.81
Self-Efficacy (SE)	.91
Knowledge about Career (KNWC-CAR)	.81
Collaboration (COL)	.79
Barriers Collaboration (Bar-Col)	.72
Orientation	.78
Overall Scale	.84

Results presented at INTED 2023 and ESERA 2024. Quesada et al

The following table shows as an example some of the items used. The questionnaires for the intermediate and final measurement also have other items related to the teachers' perception of different specific aspects of the platform.^[17]_[SEP]

Table 2. Scales and some examples of items content

Scales	Items (e.g.)
Motivation (MOT)	I feel that teaching is worth doing. TASK VALUE I feel passionate about the teaching career. INTRINSIC
Self-Efficacy (SELF)	I know how to engage students in inquiry activities. I know how to use contexts from reality to make my subject interesting to students.
Knowledge about Career (KNW-CAR)	I know different ways to get higher positions in my career. The teaching profession has multiple paths for professional development
Collaboration (COL)	I have very good experiences collaborating with other colleagues. Collaborating with colleagues help me to grow professionally.
Barriers Collaboration (BAR-COL)	Collaborating with colleagues is time-consuming. I find it very difficult to collaborate with other colleagues because of lack of time.
Orientation (ORI)	I am interested in growing professionally. I am interested in continuing my teacher professional development.

Questionnaires also include a first block of to gather “demographic” information of teachers and also some items to gather information about the attitudes towards the use of on-line resources or planforms. Intermediate and post ques were complemented with a new set of items to gather information related to different aspects and sections of the Teach4Life platform.

Data gathering and data treatment.

Dates for measurement points (three as they appear in the CA) were agreed upon within the consortium members involved in the field trials, with some flexibility adapted to the national context regarding the beginning (for pre-test), intermediate dates, and the final deadline (for post-test) for the third measurement. All have in common approximately a 6-

month period. During each phase, the partners were advised by the WP5 team. All data from the measurements through the questionnaires were collected electronically. Each partner was responsible for the delivery of questionnaires on time and within their teachers. Questionnaires were delivered electronically via Google Forms and data was exported and saved using google sheets using one corporative account and institutional computers regarding the data protection issues.

All responses were exported to sheets file tables. The analysis of the demographic data was carried out using the basic functions of the spreadsheet, while the data processing, the calculation of the scales and subsequent statistical treatment were carried out by combining the data sheet and SPSS files. After coding the Likert-type responses, missing or strange data were identified. In this case, only those data related to redundancies have been eliminated. Those data whose code was anonymized were eliminated when it was suspected that an individual could complete or send the questionnaire more than once at the same point in the measurement. This percentage was extremely low, but the process was necessary for “data cleaning”.

The “matching” system is carried out through the anonymized teacher codes. Once the paired individuals have been identified (we must keep in mind that by having three measurements, these may be different in each pair of measurements) those that are unique responses are marked. Single responses are also very useful, depending on the analysis to be performed. The calculation of gains can be carried out in two different ways:

- a.) considering the samples as independent, at each two measurement points (pre-inter; inter-post and pre-post), that is, the individuals in the pre- test and post-test do not necessarily have to be the same
- b.) make the analysis taking into account only the individuals that appear in common at two measurement points (pre-inter; inter-post; pre-post). (“Dependent sample”).

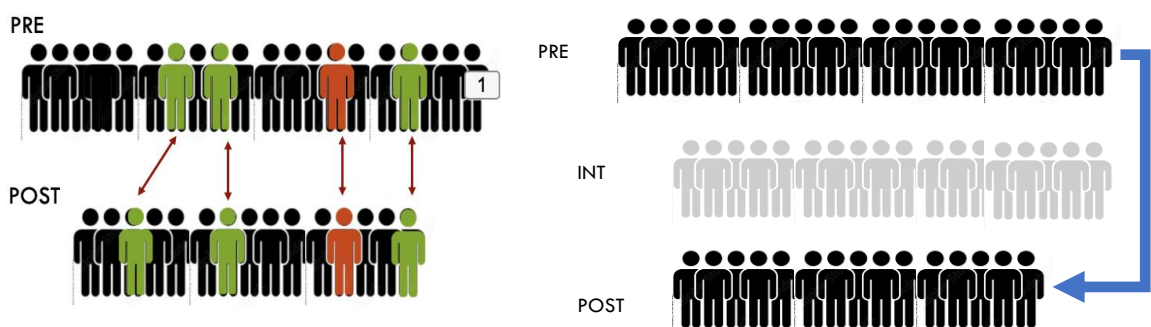


Figure 3. Schematic representation for the analysis. “Green & orange” are same teachers in both groups (Matched). “Green, orange and black” are teachers that could be or not the same in both groups (all). “

One challenge of the three measurements has been to keep same teachers filling the questionnaires along the three different points of measurements. Nevertheless, and as overall the committed numbers have been reached for the consortium patterns involved in the field trials. Tables 3-9 shows the overall numbers of teachers who filled the questionnaires along experimentation in the different countries of field trials.

The quantitative study sample

A well detailed description of the sample is necessary (compulsory for an experimental study) to understand the aspects related to the interaction of these teachers with the platform or their involvement in the professional development courses that have used Teach4life resources.

Tables 3-9 show those figures in numbers of teachers who have participated in the field trials and who completed the pre and/or intermediate and/or post questionnaires at different points of the field trials. As overall we can see teachers' commitment as key part of this research when asking them to fill out the questionnaires. Tables 3-9 show also the overview of "unique" teachers for each country. These considerations and notes have to be applied and should take into consideration for a better understanding of such numbers:

- a.) Matched teachers' questionnaires along three tree points of measurements
- b.) Matched teachers' questionnaires along two points of measurements
- c.) $N_{pre} + N_{int} + N_{post} - 3N_{matched}$
- d.) Those teachers that are not matched in two measurements. Calculated as $N_x - N_y - 2N_{matched}$; x is pre-test or inter-test and y is inter-test or post-test, with these combinations pre-inter; inter-post; pre-post
- e.) "Unique "teachers: sum of (a)+ (c) or (b) + (d)
- f.) Sum P-I-P: is the number of questionnaires along the whole measurement. Is the sum of pre-test, intermediate-test and post-test-questionnaires

Table 3. Spanish Teacher Questionnaires

SPAIN								
Pre	Inter	Post	Sum	Matched	Matched	"Unique" not		All "unique" teachers along these measurements
			P-I- P	(a)	(b)	matched		
			(f)			(c)	(d)	
252	132	125	509	78	-	275	-	353
252	132	-	-	-	98	-	188	286
-	132	125	-	-	96	-	65	161
252	-	125	-	-	90	-	197	287

Table 4. Portuguese Teacher Questionnaires

PORTUGAL								
Pre	Inter	Post	Sum	Matched	Matched	"Unique" not		All "unique" teachers along these measurements
			P-I- P	(a)	(b)	matched		
			(f)			(c)	(d)	
209	168	141	518	84	-	434	-	350
209	168	-	-	-	117	-	143	260
-	168	141	-	-	107	-	65	172
209	-	141	-	-	94	-	162	256

Table 5. Turkish Teacher Questionnaires

TURKEY								
Pre	Inter	Post	Sum P-I-P (f)	Matched (a)	Matched (b)	"Unique" not matched		All "unique" teachers along these measurements
						(c)	(d)	
366	171	127	664	64	-	372	-	436
366	171	-	-	-	123	-	291	414
-	171	127	-	-	81	-	136	217
366	-	127	-	-	87	-	319	256

Table 6. Lithuanian Teacher Questionnaires

LITHUANIA								
Pre	Inter	Post	Sum P-I-P (f)	Matched (a)	Matched (b)	"Unique" not matched		All "unique" teachers along these measurements
						(c)	(d)	
146	107	99	352	46	-	214	-	260
146	107	-	-	-	71	-	111	182
-	107	99	-	-	60	-	86	146
146	-	99	-	-	62	-	121	183

Table 7. Dutch Teacher Questionnaires

THE NETHERLAND								
Pre	Inter	Post	Sum P-I-P (f)	Matched (a)	Matched (b)	"Unique" not matched (c) (d)		All "unique" teachers along these measurements
98	80	51	229	27	-	148	-	175
98	80	-	-	-	53	-	72	125
-	80	51	-	-	37	-	57	94
98	-	51	-	-	33	-	83	116

Table 8. German Teacher questionnaire

GERMANY								
Pre	Inter	Post	Sum P-I-P (f)	Matched (a)	Matched (b)	"Unique" not matched (c) (d)		All "unique" teachers along these measurements
63	75	46	184	34	-	82	-	116
63	75	-	-	-	41	-	56	97
-	75	46	-	-	37	-	84	94
63	-	46	-	-	39	-	31	70

Table 9. Cross-national sample of teachers who filled the questionnaires (part of the field trials; “unique” & matched)

	Spain	Portugal	Turkey	Lithuania	Germany	Netherland	Overall “unique” teachers
“Unique” teachers	353	350 (1)	436	260	116 (2)	175	1820 (1,2)
Matched pre-post	90	94	89	62	39	33	

1. Portugal: to be added in total number 52 “unique” pre-service teachers; $350+52 = 402$.
2. Germany: to be added in total number 78 “unique” pre-service teacher. $116+78 = 194$.

As stated, before only in-serve teachers’ cohorts has been taken into consideration for the analysis and comparisons.

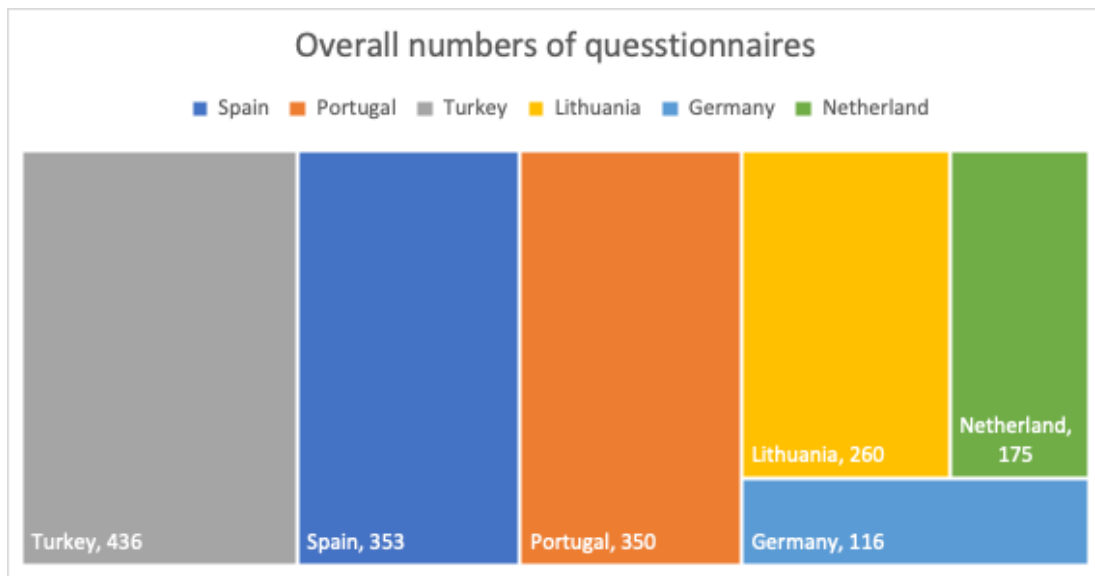


Figure 4. Schematic representation of consortium numbers. Overall number of “unique” teachers & questionnaires “

Results from the quantitative analysis

Teachers Background information. Description of the sample. Teacher’s profiles

Across each participating country, teachers were requested to provide information regarding their personal background (such as subject area and teaching experience) along

with other key entry characteristics such as the orientation to use platforms or resources as well as their implication in professional courses. Most of the teachers involved in the field trials are secondary education teachers (for example, in the case of Spain, 99%) although there are also primary education teachers, as is the case in Lithuania. Due to the larger proportion of this cohort, in-service teachers are the sample of this study. Tables 10 and 11 show the profiles of teachers according to gender and the option of initial orientation towards a teaching career.

Table 10. Cross-national results: “Was being a teacher your first career choice?”

	Pre-test (all)		Post-test (only-matched)		Ratio ¹
	Yes	No	Yes	No	
Spain	42.6 %	57.4 %	33.3 %	66.7 %	0.5 (0.7)
Portugal	68.4 %	31.6 %	61.7 %	38.3 %	1.6 (2.2)
Turkey	80.6 %	19.4 %	74.4 %	25.6 %	2.9 (4.2)
Lithuania	74.7 %	25.3 %	67.7 %	32,3 %	2.1 (2.9)
Germany	55,6 %	44,4 %	56,4 %	43,6 %	1.2 (1.3)
Netherland	50.0 %	50.0 %	57.6 %	42.4 %	1.4 (1.0)

Note 1: post-matched questionnaires. Intention as first choice **YES:NO**. In brackets the same ratio for the pre-test with all teachers

Table 11. Gender cross-national teachers' data by gender

	Pre-test (all)		Post-test (only-matched)		Ratio ¹
	Male	Female	Male	Female	
Spain	31.1 %	68.9 %	35.6 %	64.4 %	1.81
Portugal	14.4 %	85.2 %	18.1 %	81.9 %	4.52
Turkey	26.2 %	73.8 %	29.1 %	70.9 %	2.43
Lithuania	8.2 %	91.8 %	9.7 %	90.3 %	9.30
Germany	28.6 %	71.4 %	28.2 %	71.8 %	2.54

Netherland	35.7 %	63.3 %	30.3 %	69.7 %	2.30
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Some data does not sum 100% because “other” could be chosen

Note 1: Ration determined for pre-post-matched questionnaires

The background and orientation sections have been analyzed for all teachers who initiated contact with the platform in the pre-test measure and only for those teachers who are paired (questionnaires matched) in the initial pre-test and final post-test measurement. Tables 10-13 show the results of that section. The data in table 10 are quite relevant and allow us to see the diversity of the cross-national study samples but in any case, for almost all countries partners +55% of teachers (57%-74%) chose to be teachers (career orientation) as their first option, but Spain showed an inverted proportion. For example, it is noticeable how teachers in Spain choose the option that being a teacher was not their first choice as a career. Without going into detail of the analysis, which would be beyond the scope of this report, this is coherent for the case of Spain, since the teaching career in secondary education is linked first of all to have a degree in some STEM discipline.

We can observe that in relation to “gender” the studied cohort of teachers is predominantly “female”. In the case of Lithuania, 90% of the teachers are female. The female/male ratio has been calculated for the interpretation of the data.

Figure 5. “Space of similarities”. Ratio Female:Male

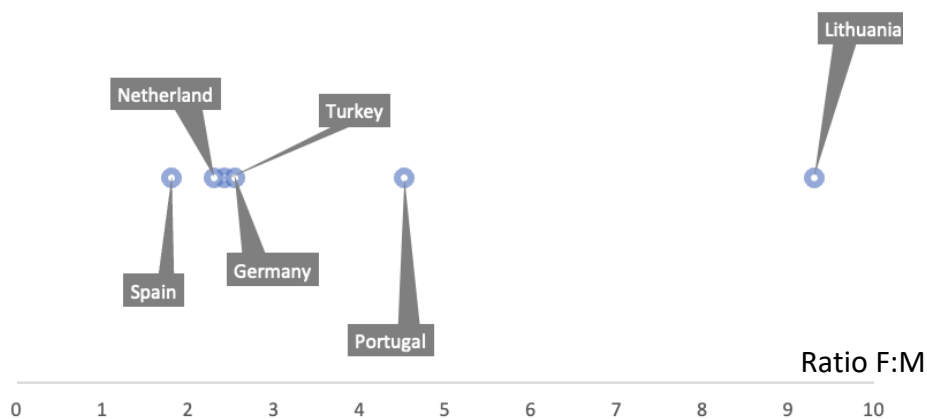


Figure 6. “Space of similarities”. Ratio “Career orientation. Teacher as first option”

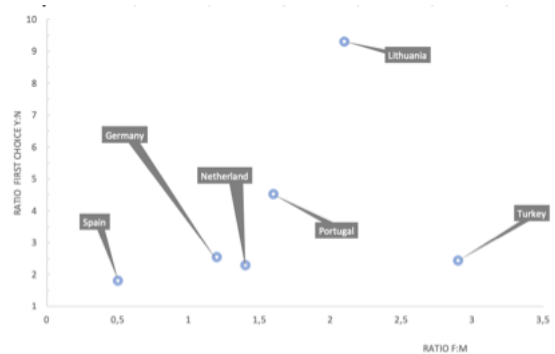


Figure 7. Comparison. Ratio “Career orientation. Teacher as first option” vs “Ratio female:male”

Depending on whether we take the whole sample ("independent") or just the "paired" questionnaires of teachers, we can get slightly different results. However, these seems to be not remarkable and in any case the comparison offers us a very interesting perspective. From the teachers who decide to continue (or complete the questionnaires at three measurement points) during the 6 months in the field trials, we can determine "the dropout rate" based on demographic variables. For example, in Spain, 10% of teachers did not continue (or they did not fill the questionnaires). Those teachers indicated that teaching was their first choice as their professional career. These data seem to be relevant (for decision making about resources design). We infer that perhaps these teachers, initially with a more defined vocation at the beginning of their career, "require more" than what we offer on the platform, in training or accompaniment in the professional development courses in which the materials have been embedded. In other words, we could think that their expectation seems to be higher. That is why we can think that the materials or resources offered or the platform must take into account different "degrees" of motivation and teaching profiles.

Table 12. Range of Teachers' age (post-matched sample).
(Highlight the highest % in the rage of ages within the country)

Range of age	SP	PT	TK	LT	NL	GM
20-30 years	7.6%	0.0%	12.8%	1.6%	15.3%	10.3%
31-40 years	24.7%	7.4%	53.5%	14.5%	13.3%	30.8%
41-50 years	48.2%	53.2%	29.1%	45.2%	18.4%	25.6%
51-60 years	18.3%	35.1%	4.7%	33.9%	37.8%	28.2%
60+ years	1.2%	4.3%	0.0%	4.8%	15.3%	5.1%

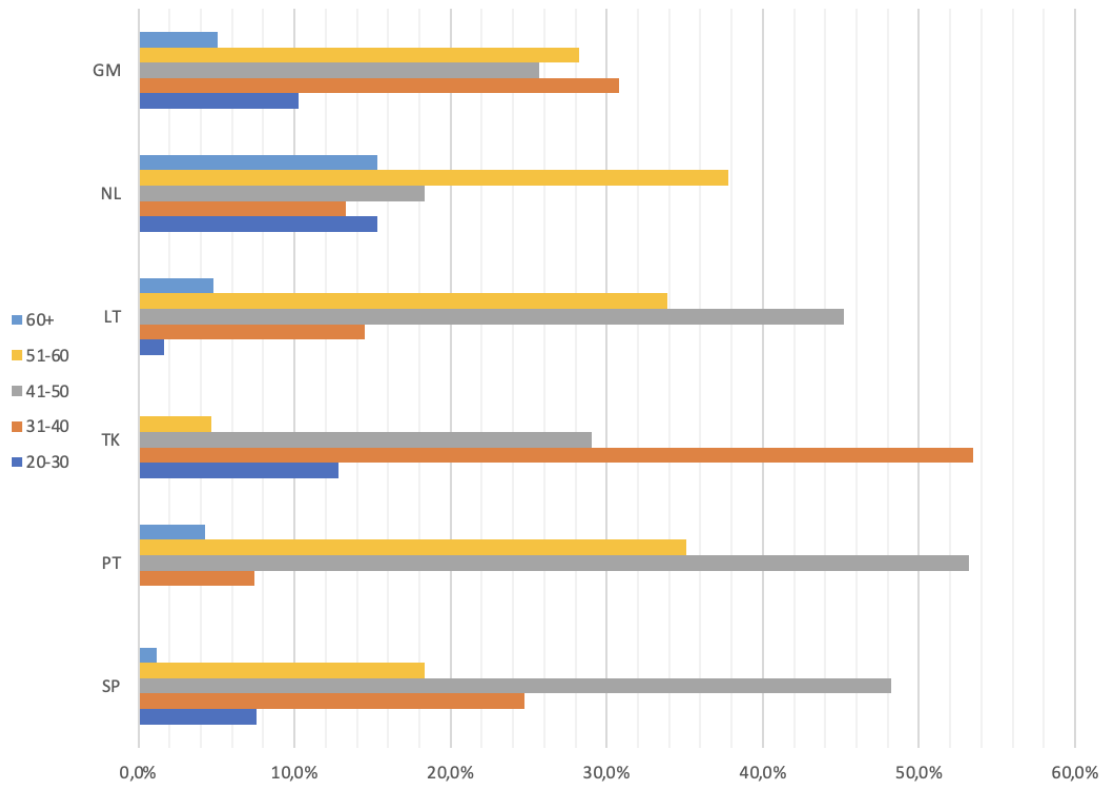


Figure 8. Range of Teachers age

Over the 45% of teachers from Spain, Portugal, Lithuania is in the range of age of 41-50. 53.5 % of Turkish teachers are in the range of 31-40 years and c.a. 30% are in the range of 41-50 age. As overall we can say that for all countries teachers are close or above 31 years old. Data in table 13 show years of experience reported by the teachers. The results indicate a cohort in which, in general, the highest proportion of teachers have more than 11 years of experience.

Table 13. Teacher experience (Teaching; Highlighted the lowest and the highest % in relation to the range of years of experience for each country)

Teaching experience (years)	SP	PT	TK	LT	NL	GM
[0-5]	31,1%	5,3%	11,6%	11,3%	18,4%	17,9%

[6-10]	16,7%	6,4%	20,9%	3,2%	12,2%	12,8%
[11-15]	15,1%	13,8%	31,4%	14,5%	15,3%	23,1%
[+15]	36,7%	74,5%	36,0%	71,0%	54,1%	46,2%

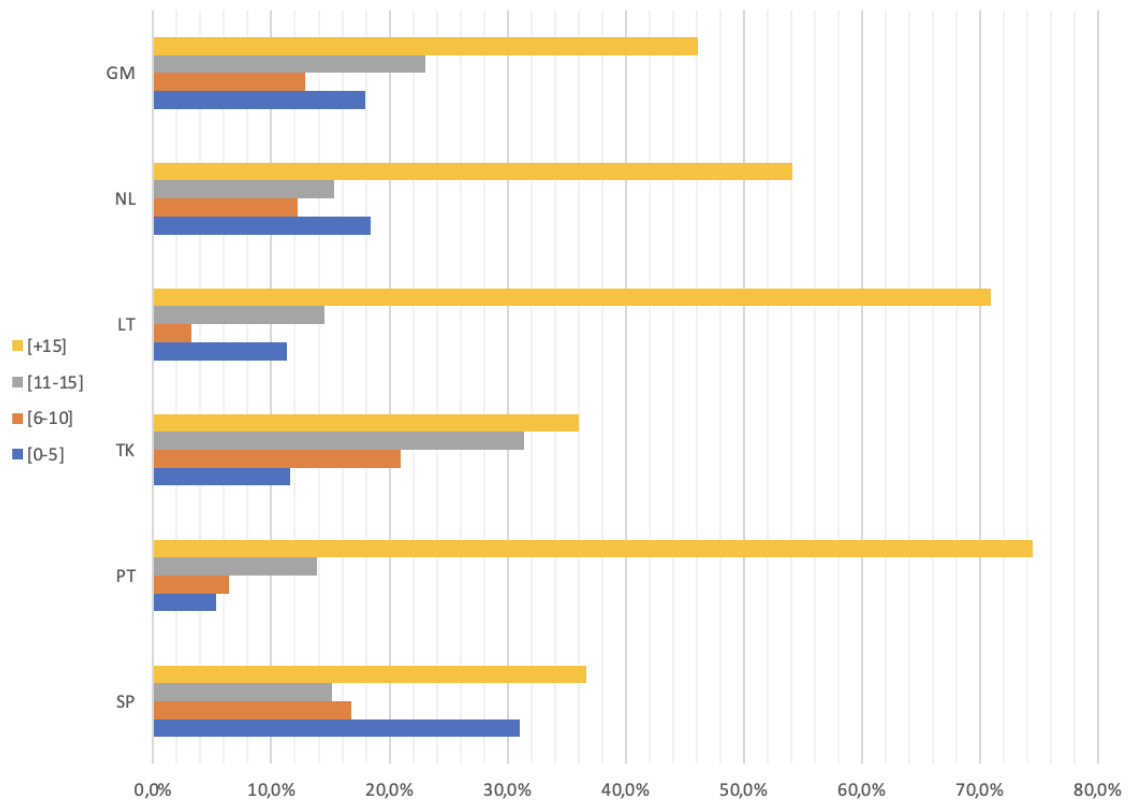


Figure 9. Teachers' experience

In Tables 14-19 we can see that background of the teachers involved in the field trials is related to STEM disciplines. The tables show the top 5, in percentage, within the samples studied and the highest percentage has been shaded for both the background field and the main contents or subjects taught. Although they do not appear in the tables, the remaining % are also related to scientific disciplines in both training and teaching. The following tables show the 5 highest frequencies for each of the countries in relation to the questions:

Teachers' profiles (Background and Subjects taught)

Table 14. SPAIN			
Data from pretest measurement all (N=252)			
Background. Main field of expertise.		Main contents that have been taught in the last five years	
Physics	7.6%	Mathematics and others	52.6 %
Mathematics	21.9 %	Physics and others	13.6 %
Biology	28.3 %	Biology and others	13.6%
Technology	16.6 %	Technology and others	11.9 %
Chemistry	19.9 %	Chemistry and others	4.0 %

Table 15. PORTUGAL			
Data from pretest measurement all (N=209)			
Background. Main field of expertise.		Main contents that have been taught in the last five years	
Physics, Chemistry	23.94%	Mathematics	12.9 %
Mathematics, Biology	12.70%	Physics, Chemistry	30.6 %
Other	35.9 %	Other	27.7 %
Technology	13.80%	Technology	11.5%
Chemistry	6.3 %	Mathematics and others	11.9 %

Table 16. TURKEY			
Data from pretest measurement all (N=366)			
Background. Main field of expertise.		Main contents that have been taught in the last five years	
Physics	4.4 %	Physics	3.6 %
Sciences	39.6 %	Sciences	41.1 %
Mathematics	16.1%	Mathematics	18.3 %
Others	31.9 %	Others	29.5 %

Chemistry 2.7 %

Design Technology 2.7 %

Table 17. LITHUANIA

Data from pretest measurement all (N=146)

Background. Main field of expertise.		Main contents that have been taught in the last five years	
Biology	7.5 %	Biology	6.2 %
Physics	9.6 %	Physics	8.2 %
Mathematics	11.6 %	Mathematics	11.6 %
Informatics and others	61.6 %	Informatics and others	62.3 %
Technology	4.8%	Technology	6.9 %

Table 18. NETHERLANDS

Data from pretest measurement all (N=98)

Background. Main field of expertise.		Main contents that have been taught in the last five years	
Biology and others	11.2 %	Biology and others	12.2 %
Physics and others	17.3 %	Physics and others	15.1 %
Mathematics and others	49.0 %	Mathematics and others	47.7 %
Chemistry and other	8.2 %	Others	15.3 %
Informatics	2.1 %	Chemistry and others	7.1 %

Table 19. GERMANY

Data from pretest measurement all (N=116)

Background. Main field of expertise.		Main contents that have been taught in the last five years	
Biology	17.5 %	Biology	17.5 %
Physics	11.1 %	Technology	11.1 %
Mathematics	34.9 %	Mathematics	30.0 %
Miscellaneous	17.5 %	Miscellaneous	22.2 %
Chemistry	11.1%	Chemistry	14.3 %

Thus, as overall we can see how teachers enrolled in the field trials have a strong background in STEM disciplines. For Netherland and Germany is predominately in “Mathematics” and for the other countries in a diverse Sciences disciplines, including also mathematics. For Portugal and Lithuania there are a great number of teachers that select “others” but also background in Science & Math are present.

Highlight: In 3C4Life project teachers (in higher proportion of women) with a background in STEM (both as initial profile and as a teachers) enrolled and engaged with the use of the platform.

In relation to other questions in the first block of the questionnaire, we show the table 20. We have only taken the data from pre-test-all; (to have a greater representativeness of the sample). The questions in that section of the questionnaire were:

P1: How many training actions have you attended in in the last five years?

P2: How often do you use digital platform for your professional development?

P3: How often do you use digital resources to improve your skills as a teacher?

Table 20. Response for the background teacher's information in questionnaires

Spain Pre-test (all)		Portugal. Pre-test (all)	
P1	63,75%	P1	64.6 %
P2	53,4 %	P2	55.9 %
P3	61.8 %	P3	51.7 %
Turkey Pre-test (all)		Lithuania Pre-test (all)	
P1	66.4% %	P1	75.3 %
P2	80.9 %	P2	73.9 %
P3	81.9%	P3	76.7 %
Germany Pre-test (all)		Netherland Pre-test (all)	
P1	61.9 %	P1	1.1% (61.2% 1 to 3)
P2	50.8 %	P2	17.35 %
P3	61.9 %	P3	33.67 %

% Response to P1 (...more than 5 actions)

% response to P2 (...very often)

% response to P3 (...very often)

In general, the results show a group of teachers committed to their professional development (>60% attend to PDC in las years) and the use of digital resources and platforms to improve teaching skills and keep on growing as professionals.

This profile is very well aligned, and is consistent, with the motivation scale (which we will discuss in the following sections). Teachers involved in the field trials have a very positive attitude and a high degree of motivation for professional growth and attending professional development courses. This, *a priori*, seems to be a challenge from the point of view of this research since high values in the pre-test or post-test measurements on the scales saturate and it will be difficult to obtain gains. However, a positive result is that motivation has remained stable throughout the field trials (this fact was a very interesting point of discussion in the ESERA symposium presentation). We will return to this issue later. In relation to the question of improving teaching skills (P3), there have been very interesting findings from “gains” study (next section).

Pre-test / Post-test analysis and results

The analysis has been carried out using the previously defined scales. Although we could obtain a lot of information in an item-by-item analysis (using frequencies and correlational

relationships) the instrument was not designed to carry out that study. Therefore, the results herein presented are referred to the normalized scales from Table 2 (min. 1 point, max. 5 points). This section presents all the results of the pre-test and post-test study, and in some cases the intermediate measurement which has also provided us meaningful results to take into account. We consider that there is a gain (it means a positive impact on those attitudes and teacher believes) when the scale average (mean) in the post-test is greater than the pre-test average. But in this sense, we also want to add the character of statistical significance, that is, this difference is big enough to be statistically significant (confirmed through statistical tests). Due to some cultural and contextual factors related to de professional growth, knowledge and development, (that will be well described in the case studies section) we should not compare scales between countries. Furthermore, each group of teachers used or interact with the platform depending on their needs and educational and formative context, so this analytical approach should be considered (we have not carried out the multivariate study nor cross-national comparison in terms of statistical differences between countries). However, it is interesting to have an overall view of such data (Table 20).

As overall for all countries, through the results of the corresponding scale of our instrument, results show a profile of high motivation (MOT, both intrinsic and extrinsic) of the teachers who participated in field trials. At a glance we can see that all the values are above 4 (high). This fact may pose a challenge from the point of view of measuring the impact since starting from a high initial value, the expected gain, if any, could be more difficult to reach. In other words, is difficult to teachers that are motivated to get them more motivate. But “a good” result will be that at least there had no losses in this scale. These results suggest teachers who participate in the study show a high motivational component, which seems to be quite coherent, considering their commitment and the non-compulsory of the course or the access to the platform. One of the lessons learned (and it is confirmed along the longitudinal study, 6 months) is that this motivational dimension (**MOT**) seems to be not affected and keep stable along the intervention.

Table 21 shows the motivation scale (MOT) for each of the countries (at the pre-test measurement point).

Table 21. Pre-test values (matched) for the SCALES within countries

	Countries comparison pre-test (matched in post-test) M(SD)					
	SP	PT	TK	LT	NL	GM
MOT	4.60 (.41)	4.27 (.49)	4.39 (.51)	4.27 (.54)	4.30 (.45)	4.41(.57)
SELF	3.51 (.61)	3.76 (.52)	4.07 (.50)	3.91 (.48)	3.81 (.53)	3.77 (.66)
KWN-CAR	3.08 (.76)	3.32 (.64)	3.96 (.61)	3.67 (.65)	3.53 (.79)	3,40 (.95)
COL	4.32 (.45)	3.54 (.38)	4.31 (.45)	4.33 (.44)	4.27 (.37)	4.13 (.55)
BAR-COL	3.70 (.67)	2.63 (.76)	2.40 (.83)	2.42 (.76)	2.61 (.78)	3.24 (.70)
ORI	4.42 (.52)	4.63 (.46)	2.40 (.83)	4.31 (.53)	4.33(.46)	4.15 (.72)

Note: BAR-COL items for this scale were formulate in a “negative sense”. Scale has not been inverted, so the highest value the greater the perception of the barrier and lower the value, the lower the perception of it.

Tables 22-27 show values for the pre-test and post-test and those cases in which the differences are big enough to be considered significant have been highlighted. Figures

In general, the perception of the benefits of collaboration (**COL**) is quite positive (with values on the scale greater than 4 (normalized) for all countries and above 3.5 for Portugal). Withing scale, the post-test values are higher, with significant differences, for **Portugal** and **Turkey**. Data from the **COL** scale correlate (p negative, Sperman) with the **BAR-COL** scale. This can be interpreted as teachers positively give value to collaborate with others teachers (**COL**) but at the same time consider that there are barriers and factors to do it (**BAR-COL**) (and they hold or increase this perception). This view is” resistant” and could hind teachers initiatives for collaboration even when they value it. Successful case of Portugal and Turkey, with significant differences and considerable d effect sizes could be found in the case studies.

On the other hand, as shown in table 28 when considering “independent” samples, BAR-COL increase significantly after the implementation if “all teachers” are considered. This does not happen, significantly, if we only consider those “matched” teachers in the study. One possible explanation is that the implementation “attenuates” the perception of the barriers (BAR-COL), although it is not enough to make the evolution visible. In this point as recommendation, strategies should pay more attention to overcome this perception.

In relation to other scales the results shown gains, and in some cases significant gains, for those scales used in our research, specifically those related to self-efficacy (**SEFL**) knowledge about career (**KNW-CAR**) for Spain, Turkey and Portugal. These results must be analyzed in more detail but they are, at this point quite promising because the data in the dimension fo self-efficacy is also related to the materials and the “Competence” section in the platform, and how those resources has been used. For example, the self-efficacy scale itself can be analyzed as sub-scales and these are related to STEM teaching competencies

such as inquiry-based or contextualized learning. These significant gains within the scale **SEFL** in Spain, Portugal and Turkey could be considered as “successful story”. It seems that teachers felt more “Competent” (in such strategies/or with those material)” after the field trials.

Coming back to “BAR-COL” scale, results can be explained by inferring that the deeper the teacher goes into the course/platform/materials the more they perceive barriers for collaboration, and on the contrary, the more contact they have with the resources and pedagogies (withing the section “competence” in the platform) the perceptions of their self-efficacy (**SELF**) increase. This is an interesting fact because we would have to check if this perception of self-efficacy is sustained (or decrease) in the phase in which the teacher has to transfer what he has learned to the classroom or on the contrary, as found in some literature, it decreases when teachers implement in her/his classroom.

Results show how the knowledge about career (**KNW-CAR**) has increase (with significant differences) after the use of the platform, in Spain, Turkey and Portugal. We can draw a conclusion that different resources (embedded in the platform) showing diverse options of professional trajectories enhance the knowledge of those users (teachers) that navigate or view then. This finding is aligned and connected with results in Teachers’ views/attitudes about platform.

As overall the results are meaningful and relevant because significant gains have been found in three of the five scales.

Pre-post (matched) statistical data (Mean (SD))

Table 22. Spain			
Average (Standard deviation)			
Scale	Pre	Post	d (effect size)
Motivation (MOT)	4.60 (.41)	4.57(.43)	0.07
Self-Efficacy (SELF) **	3.51 (.61)	3.87(.51)	0.64
Knowledge about Career (KNW-CAR) **	3.08 (.76)	3.57 (.77)	0.64
Collaboration (COL)	4.32 (.45)	4.32 (.47)	0.00
Barriers Collaboration (BAR-COL)	3.70 (.67)	3.87 (.47)	0.29

Orientation (ORI) *	4.42 (.52)	4.19 (.70)	0.37
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** p < 0.001 *p < 0.05); The observed effect size d = 0.64 is medium, and the observed effect size 0.29 is small

Table 23. Portugal

Average (Standard deviation)			
Scale	Pre	Post	d (effect size)
Motivation (MOT)	4.27 (.49)	4.40 (.44)	0.28
Self-Efficacy (SELF) **	3.76 (.52)	4.14 (.51)	0.73
Knowledge about Career (KNW-CAR) **	3.32 (.64)	3,77 (.65)	0.70
Collaboration (COL)**	3.54 (.38)	4.53 (.40)	2.54
Barriers Collaboration (BAR-COL)	2.63 (.76)	2.62 (.79)	0.01
Orientation (ORI)	4.63 (.46)	4.69 (.42)	0.14

** p < 0.001; Effect size d >0.70 (large)

Table 24. Turkey

Average (Standard deviation)			
Scale	Pre	Post	d (effect size)
Motivation (MOT)	4.39 (.51)	4.46 (.62)	0.12
Self-Efficacy (SELF) **	4.07 (.50)	4.44 (.49)	0.75

Table 24. Turkey			
Knowledge about Career (KNW-CAR) **	3.96 (.61)	4.35 (.55)	0.67
Collaboration (COL)*	4.31 (.45)	4.50 (.49)	0.40
Barriers Collaboration (BAR-COL)	2.40 (.83)	2.29 (.85)	0.13
Orientation (ORI)	-	4.63 (.49)	0.00

** p < 0.001
*p < 0.05
d=0.75 (large); d= 0.67 and 0.40 (medium)

Table 25. Lithuania			
Average (Standard deviation)			
Scale	Pre	Post	d (effect size)
Motivation (MOT)	4.27 (.54)	4.27 (.54)	small
Self-Efficacy (SELF)	3.91 (.48)	4.01 (.53)	small
Knowledge about Career (KNWC-CAR)	3.67 (.65)	3.65 (.61)	small
Collaboration (COL)	4.33 (.44)	4.35 (.38)	small
Barriers Collaboration (BAR-COL)	2.42 (.76)	2.69 (.74)	small
Orientation (ORI)	4.31 (.53)	4.27 (.53)	small

Table 26. Netherlands

Average (Standard deviation)			
Scale	Pre	Post	d (effect size)
Motivation (MOT)	4.30 (.45)	4.28 (.39)	small
Self-Efficacy (SELF)	3.81 (.53)	3.98 (.49)	0.33
Knowledge about Career (KNWC-CAR)	3.53 (.79)	3.67 (.60)	0.20
Collaboration (COL)	4.27 (.37)	4.29 (.29)	small
Barriers Collaboration (BAR-COL)	2.61 (.78)	2.86 (.74)	0.33
Orientation (ORI)	4.33 (.46)	4.36 (.53)	0.0

Table 27. Germany

Average (Standard deviation)			
Scale	Pre	Post	d (effect size)
Motivation (MOT)	4.41(.57)	4.32 (.57)	small
Self-Efficacy (SELF)	3.77 (.66)	3.86 (.61)	small
Knowledge about Career (KNWC-CAR)	3,40 (.95)	3,42 (1)	small
Collaboration (COL)	4.13 (.55)	4.12 (.58)	small
Barriers Collaboration (BAR-COL)	3.24 (.70)	3.32 (.77)	small
Orientation (ORI)	4.15 (.72)	4.17 (.84)	small

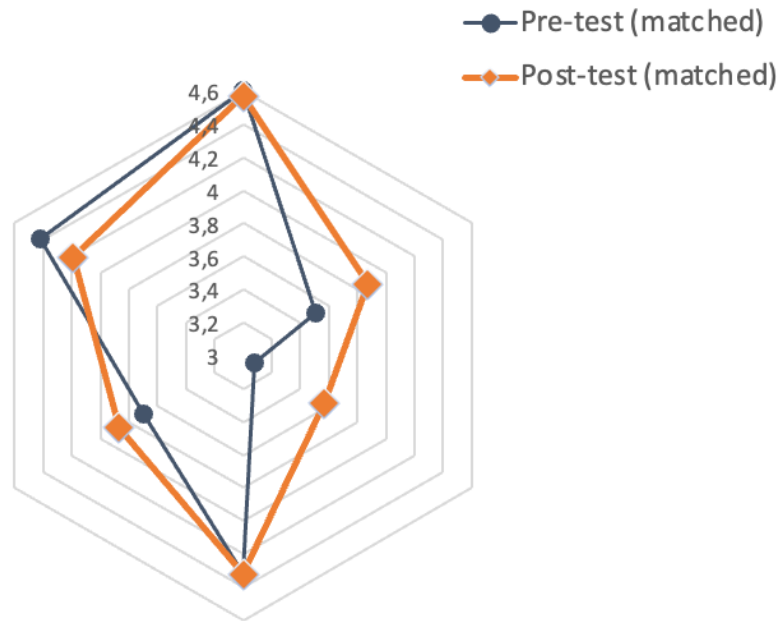


Figure 7.1. Radial graph for Spanish “gains”

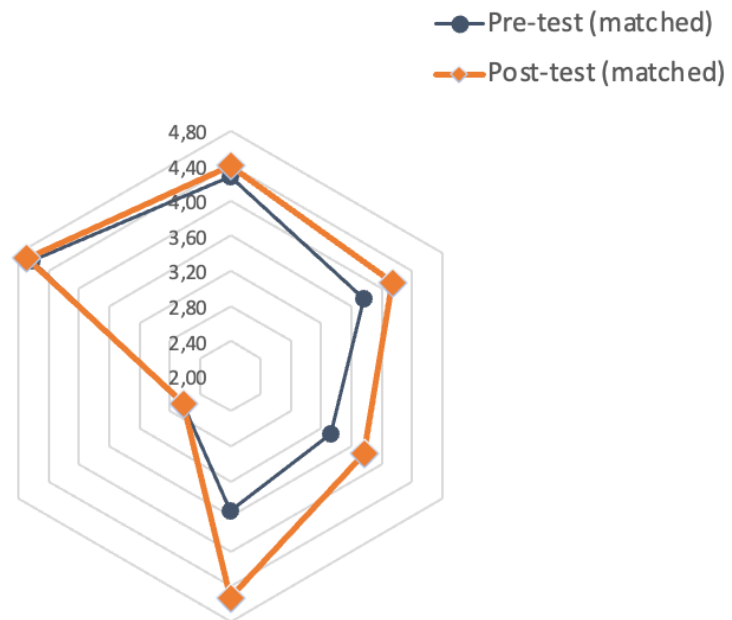


Figure 7.2. Radial graph for Portugal “gains”

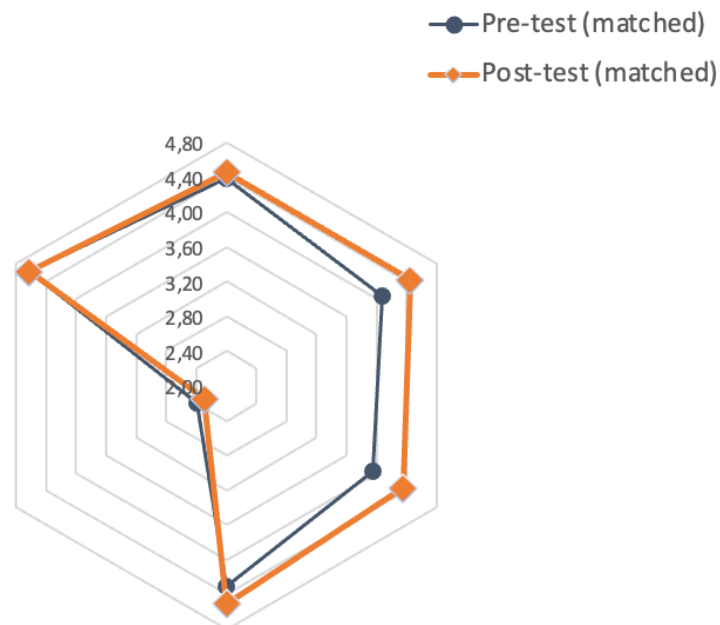


Figure 10. Radial graph for Turkey "gains"

And... what has happened with the inter-test measurements? For the analysis we have taken as reference those cases in which significant gains have been observed in the post-test and analyzed those dimensions. The findings are quite relevant since it is observed how in the intermediate measurement, in some cases such as in Spain, the perception of self-efficacy (**SELF**) had already gains after three months, and the Career-Knowledge (**KNW_CAR**) dimension increased and reached a similar value to that obtained in the post (saturation effect). In Portugal, for example, self-efficacy (**SELF**) begins to increase in the middle stage of the measurement but not significantly while the perception of benefits of positive the collaboration (**COL**) emerges (and almost saturated) at this point (three months).

What is observed in the intermediate stages (3 months) are trends that are subsequently contrasted with the tests of statistical hypotheses at the end of the study. That is, the gains in the dimension "knowledge about career", "self-efficacy" and "collaboration" (when they exist) start in the early stages of contact with the materials, the platform or in the PDC. These findings are relevant since in terms of design it is a key element for "catching", "engagement" and "involvement".

Analysis of data in at the intermediate measurement point has been useful to verify that in those cases in which gains have been produced, they begin to show early in the implementation and in some cases, they continue to increase afterwards. This is very relevant since we can establish that the resources or platform used must be “striking” and “engaging” at the very early phases of the courses. Otherwise, it seems that those teachers, who have a high degree of motivations could “jump out the boat” or they will keep on holding “unchangeable” values of perceptions, attitudes and believes.

Table 28. Summary of statistical differences

	MOT	SELF	KNW-CAR	COL	BAR-COL	ORI
SP		(a) (+)	(a) (+)		(b) (+)	(d) (-)
PT		(a) (+)	(a) (+)	(a) (+)		
TK		(a) (+)	(a) (+)	(a) (+)		
LT					(b) (+)	
NL		(c) (+)			(c) (+) b (+)	
GM						

Notes for table 28:

- (a) **matched** pre-test post-test measurement with significant differences. The average of **pre-test** sample is assumed to be **different to** the average of **post-test** sample. In other words, the difference between the sample average of **pre-test** and **post-test** is big enough to be statistically significant. If **(+)** means that the post-test value is higher that the pre-test value and therefore there has been “gains”.
- (b) **not matched** pre-test post-test measurements with significant differences. The average of **pre-test** sample is assumed to be **different to** the average of **post-test** sample. In **other** words, the difference between the sample average of **pre-test** and **post-test** is big enough to be statistically significant. If **(+)** means that the post-test value is higher that the pre-test value. In this case the (+) in the “gain” for BAR-COL implies that teachers perceive more difficult to collaborate after the implementation
- (c) matched pre-test post-test measurement with non-significant differences but an effect size **small** but close to **medium**. The tendency of the measurement could show gains (more teachers needed for the sample).
- (d) matched pre-test post-test measurement with significant differences. The average of **pre-test** sample is assumed to be **different to** the average of **post-test** sample. In other words, the difference between the sample average of **pre-test** and **post-test** is big enough to be statistically significant. If **(-)** means that the post-test value is lower

that the pre-test value and therefore there has been “loses”. In relation to this the “ORI”: makes reference to the PCD where the platform and resources were embedded Spain (more info in case studies)

- (e) “Empty” cells. In general the value of post-test sample is higher to the value of the pre-test BUT non-significant differences; what is the same to said that the mean is the same.

Analysis of the Teacher's views/attitude platform scale

The aforementioned questionnaire (and integrated into it), was also used to measure at the intermediate point and at the final point, related to collecting information on the opinions of the

The teachers’ views and attitudes towards platform were gathered using the aforementioned questionnaire in the intermediate and post point of measurement. For those points questionnaires included “new items” (not present in the pre-test). Some of such items are shown in the table 29.

Table 29. Intermediate and post scale/items in the Q. Teacher's views/attitude

Domain	Item
Platform structure	The structure of the platform is appropriate
Platform activities & collaboration	The actives of the platform facilitate the exchange of experiences with peers
	The area of the platform dedicates to cooperation increased my participation in communities of practice with other teachers
Platform materials & PD	The interesting materials available on the platform increase my involvement in PD
Platform Knowledge Career	The platform is useful to know about career pathways
Platform resources	The platform offers useful resources to improve my teaching
Videos	Videos are useful, inspiring and motivating.
ATT_PLATFORM	Cronbach alpha > 0.85

In this case, all teachers who filled to the questionnaires in the intermediate-test and in the prost-text (but not necessarily matched) were contemplated. Results are shown in table 30 and are communicated as the “mean” of the ATT_PLATFORM scale: sum and average value of all items. Although factor analysis is out of the scope of this report, component and factor analysis yielded very positive results as a scale in relation to internal consistency. The cross-load factor of some items also revealed very interesting outcomes. Teachers perceive

that the videos are interesting materials for professional growth and knowledge of the career (intersecting different factors). In this sense, the platform is perceived as a tool to deliver videos, videos to learn more about the professional career and also as materials and resources to improve teaching.

On the other hand, the platform resources (materials, activities, etc.) are perceived as a motivating element for career knowledge and growth as teachers. This is very well aligned with the gains in the dimension of “competence”.

Table 30. Mean values of teachers’ attitudes towards the platform in the intermediate and post-test

Country	Inter-test	N	Post-test	N
SP	3.52 (.62)	132	3.62 (.66)	125
PT	3.79 (.59)	168	4.11 (.45)	142
TK	4.14 (.57)	171	4.31 (.60)	127
LT	3.85 (.49)	109	3.83 (.54)	99
NL	3.06 (.40)	80	3.13 (.40)	51
GM	3.22 (.55)	82	3.28 (.46)	46
ALL			3.83 (.50)	

Aimed at be able to classify and interpret this set of data we have defined three profiles: a low attitude profile has the minimum value defined when the total scale (10 items) is 50 points and a high profile has a maximum value when it is 500 points. One third of the scale has been used for low-medium-high.

Attitude/views teacher’s platform profiles

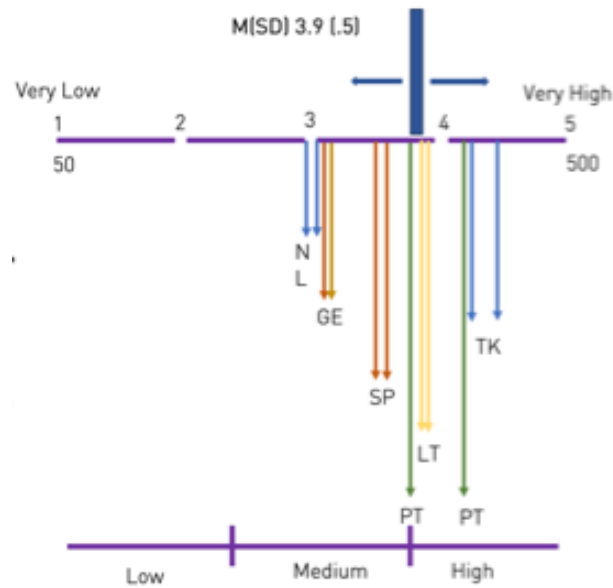


Figure 11. Teachers' attitudes/views about the platform/resources. Each colored- arrow represent the intermediate and post measurement for each country. Length of arrow has no meaning (just to avoid overlapping)

Results showed medium-high “profile” in relation to how the teachers, who have participated in the field trials, perceived the platform and the different elements of it (normalized values are shown). Moreover, except for Portugal and Turkey, results of the intermediate and final measurements do not change significantly. In this sense we can interpret that in general, the opinion of teachers, within this medium-high profile, does not change over time (at least in the following three months where data were gathered). This is a relevant finding from a design point of view, since we can conclude that the “first impression” is maintained. Therefore, it is important that teachers feel “engaged” and “with a medium-high” perception of resources and platform usefulness and utility as early as possible in accessing or working with it/them. The case of Portugal, in which the interest and vision for the resources and the platform increase (significant) over time (from three to six months) seems to be related to the way the platform/resources have been embedded/aligned with the course/intervention. This is also related to the fact that teachers have shown gains on the scales mentioned in the previous section.

Qualitative analysis procedure

A content analysis approach was applied for the analysis of the information provided by the 30 3C4LIFE national cases. Two different researchers were engaged in the analysis in order to ensure inter-rater reliability.

The main themes were identified in an inductive way and the categories of analysis were defined and revised through iterative cycles of analysis and discussion between two different researchers till reaching consensus on the categorisation and coding.

Results were triangulated using different information sources and subjected to validation in a specific workshop engaging 3C4LIFE partners.

Discussion of the main results from the case Studies

Description of the case study samples

According to the description of work, any partner country should contribute with 5 case studies. The samples in the national case studies were selected purposefully in order to illustrate either representative or extraordinary cases, with the main aim of developing a better understanding of how the platform has been used and experienced by the participant teachers in any national context. In addition, qualitative data from the teachers' interviews allowed us to identify those features of the platform best appreciated by teachers and how the platform could be improved. In the following sections, we will describe the case study samples in any of the partner countries.

A total of 30 teachers participated in the case studies. The following figures represent the gender, age and years of experiences of the sample of teachers participating in the 30 national case studies:

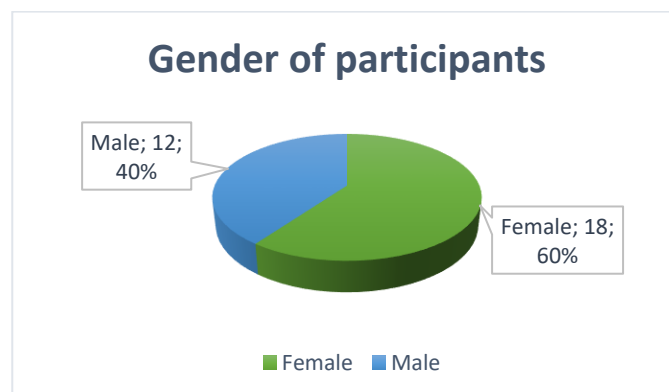


Figure 12. Gender of the participants in the 30 national case studies.

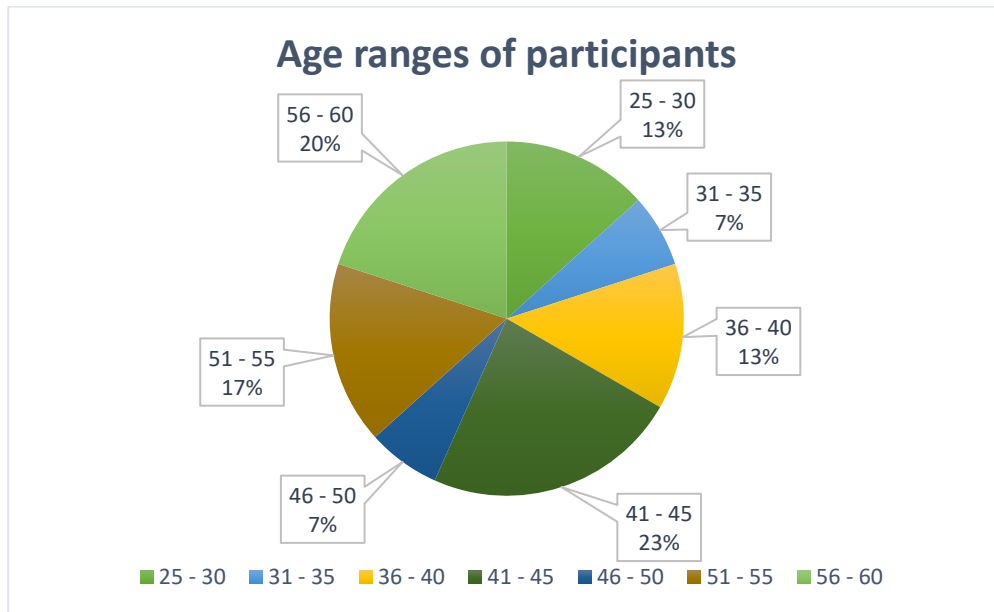


Figure 13. Age of participants in the 30 national case studies.

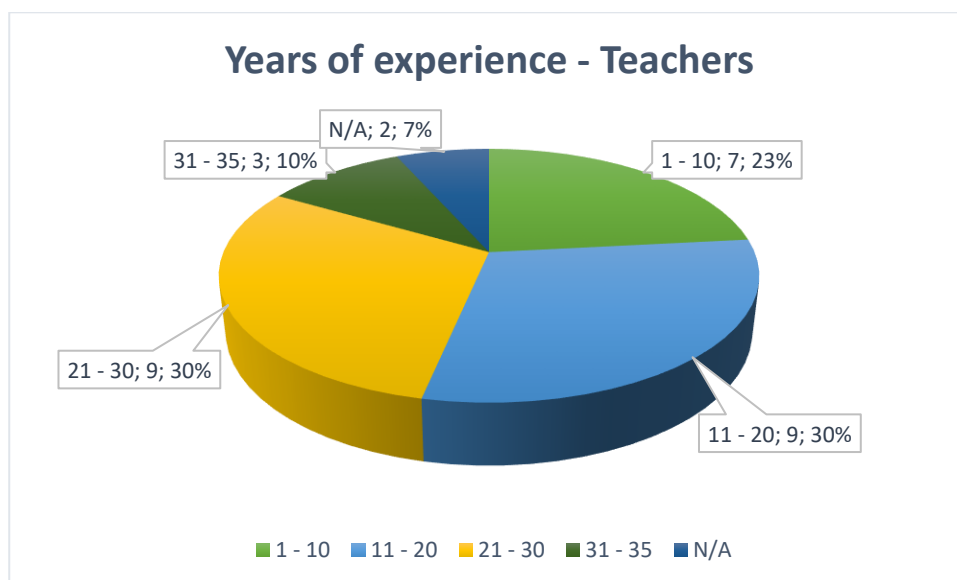


Figure 14. Teaching experience of participants in the 30 national case studies

The story about the platform use in any of the countries based on 30 Individual cases

Lithuania (LT)

The promotion and use of the platform in Lithuania

The promotion of the platform in this country was made via e-mail, social media and the university's website. In order to use the platform in their country they made translations and adaptations and they organized short workshops where teachers were motivated to study the material available in the platform and to complete the tasks and assignment proposed. In addition, they were encouraged to participate in the forums too in order to exchange experiences and they were asked to fill-in the corresponding questionnaires before starting to use the platform and 3 and 6 months after, for evaluation purposes.

The teachers' participation in the forums was not as frequent and spontaneous as expected, probably because teachers are more used to share information face-to-face and to work individually.

The Lithuanian Case Studies

Four out of five of the teachers participating in the Lithuanian case studies were women and one was a man. The age range in this case was from 38 to 60 years old, and their teaching experience, except from one of the them, was over 15 years.

At the moment of the studies, the position of four out of the five participants was as teachers and just one of them mentioned an interest in changing positions, when they were asked about it.

When asked about the main barriers perceived for their competence development, teachers pointed out to the difficulty in getting a permanent position as teachers as one of the main factors avoiding them to transfer into practice what they learn through teacher professional development course, as well as the lack of time. For instance, they said that it is a challenge for them to keep track of the new technologies that arise and to use them with their students, due to factors previously mentioned.

Regarding the challenges for collaboration, most of the teachers said that they feel reluctant to share their materials and methodologies because some colleagues just take them as their own and it is not fair, taking into account the time and effort that it takes to put it all together. It shows a need to work on authorship attribution.

Lastly, they said that the main factors that intervene in their career development are the lack of time and the difficulties to collaborate with other teachers. Some of the teachers stated that in order to maintain things interesting for students, working together is

extremely important. Also, in Lithuania, a new reform is being introduced and teachers need to spend a lot of their time understanding and adapting to the new changes, which leaves them without enough time for other lines of work focussed on their improvement and development.

In order to keep growing professionally teachers would need time, more seminars and also opportunities for face-to-face communication and interactions with other colleagues. In order to improve their collaboration with other teachers they consider fundamental to have a shared space where they could interact.

The opinions about the general experience using the platform were divided. Some of them found it satisfactory and some ended with a sensation that it lacked a few important things. Mainly, they consider that the navigation and the organization of the whole platform could be improved and they found some of the teaching materials insufficient.

The career section of the platform was useful to some teachers because they got to know about opportunities that they hadn't heard before. Suggestions were made to improve the information regarding the different offers, because it is unclear to teachers all the requirements and criteria that they have to meet in order to apply for a new position.

The competence section was also a very useful tool, the examples provided in the platform are something that teachers valued and they asked for more examples to be uploaded.

Finally, the collaboration section was found interesting by some participants because they got to see what other teachers were doing, it is enriching to read the experience of other teachers and have the opportunity to learn from others. Suggestions were made to improve the participation in the forums.

During the workshop that took place from November 15 to November 17, 2023, representatives from the country provided an insight about the general experience with the platform, drawing and some conclusions:

- In general, teachers felt most motivated when they had access to well-organized materials and practical examples, all in one place.
- Teachers were excited by the opportunity to explore connections with other disciplines, particularly in the context of Lithuania, where the concept of STEM lacks clear definition and understanding among educators. The individuals asked highlighted the value of identifying practical applications and versatile levels, as well as having detailed guidance about the aims and objectives of activities and their correlation with other scientific disciplines, themes, and practical uses.
- Teachers recognized numerous opportunities for professional development and select paths that were aligned with their individual pace and abilities.
- Peer collaboration and the exchange of educational experiences were mentioned as essential for progress and refinement in teaching. In-person interactions were considered particularly valuable for the opportunity to establish connections, find new partners, and initiate fresh projects. Teachers cherish face-to-face dialogue and the exchange of insights, showing keen interest in developments abroad.

Nonetheless, there seems to be a lack of enthusiasm among teachers in Lithuania for sharing their own resources.

- Participants found the information about the teaching career particularly beneficial for newcomers to the educational field and considered video content to be the most engaging medium for learning.

Portugal (PT)

The promotion and use of the platform in Portugal

The platform in this country was launched in December 2022 through a full week of training sessions. In order to use the platform in their country they enhanced platform activities by implementing a 50-hour professional development program for teachers that went from December 2022 to May 2023 (25 hours dedicated to autonomous activities and 25 hours to hold face-to-face sessions where the teachers explored the STEM activities offered by the platform). Around 170 teachers participated in the teacher development program. They added three videos that were included in the introductory activity on the Portuguese platform.

Teachers were encouraged to work autonomously and their answers were monitored in the forum discussions.

The Portuguese Case Studies

The teachers that participated in the case studies were chosen purposefully, considering their participation in the training sessions, their collaboration in the forum discussion and because they implemented at least one of the activities with their students.

Two out of the five Portuguese teachers that participated in the case studies were women and three were men. The age range in this case was from 43 to 57 years old, and their teaching experience was over 20 years.

At the moment of the studies, the position of four of the five participants was as teachers. Two of the participants mentioned their interest in changing position when they were asked about it.

When asked about the barriers that they identify in their competence development, the teachers mentioned the lack of adequate conditions, lack of time and lack of recognition among the main factors. For some of them, it is often that schools offer training courses that are predominantly theoretical, which is not enough to properly transfer them into their subject at schools. Also, it seems overwhelming for teachers to think about innovative teaching and having to face daily classroom problems, because all their energy is focussed on dealing with students and fulfilling the school programme, which makes time a very limiting factor.

Regarding the challenges for collaboration, some teachers said that the lack of openness was a big theme. There is a culture of reluctance to share knowledge and experiences among teachers, some of them think that others could take advantage of them sharing their material and they could copy it. It is not only their reluctance to collaborate, but their availability because time is also an important factor here.

Lastly, they said that the main factors that intervene in their career development are time and the education system. Time is a scarce resource and teachers often feel overloaded with all their responsibilities, and, even if they are offered training and development opportunities, many teachers feel that they simply don't have time to develop professionally. It is important to mention that some teachers agree that there are limitations imposed by the education system that could hinder their professional progression, for example, the Ministry of Education imposes quotas that limit the teachers in their development.

In order to keep growing professionally teachers would need proper training that is practical and applicable to their classrooms, adequate resources and infrastructure and to have a career progression that is based on teacher's real merit and not bureaucratic factors. The majority of the participants stated that it is necessary to create spaces where teachers from different backgrounds can gather and enjoy effective collaborative sessions, to create a culture of openness, and to be able to listen to the feedback of others, while having enough time to fulfil their life's obligations.

Portuguese teacher's overall experience with the platform was satisfactory, some of them appreciated the variety of resources offered, which provided them with new ideas and inspiration for their practice. Others also highlighted the usefulness of the forums, where they could write questions and see the solutions implemented by other teachers, which provided them with a very enriching insight.

Criticism for the platform was also expressed due mainly, for the experience that some teachers had when navigating it, they mentioned technical issues and lack of functionalities. The implementation of a faster and more efficient search menu was suggested, as well as a new way of organizing the interface to make it more intuitive.

The videos and some specific resources about STEM areas were praised to be the most useful elements, raising their motivation and giving examples that can be directly used in the classrooms.

As for the Career section of the platform, the general sensation was that the resources available like videos and interviews were very useful, some of the teachers got to know and remember the career alternatives that they had and some of them felt really motivated by watching the experiences of their fellow teachers. Others mentioned that they would like to have more direct information regarding the different job opportunities, direct links to the offers and websites. The more experienced teachers expressed that they knew about most of the career opportunities and implied that this section was more useful to pre-service teachers and teacher who are less experienced in their professional career.

All of the teachers applauded the competence section of the platform. They found it very useful and it offered them a large variety of resources that they could use in their classrooms. It was relevant for them to be able to use and apply activities that had been previously tested and improved by other teachers. They suggested that more resources should be uploaded.

Finally, for the collaboration section the opinions were different. Some thought that the forums were not as useful to stimulate collaboration as probably expected because several reasons. Some of them pointed out at language barriers to communicate in English with other teachers on an international level. Others mentioned the lack of collaboration culture. Anyway, they recognised that learning about other teaching experiences from colleagues was a powerful source of professional development. They expressed the need to improve the teaching collaboration through forums and to find a way to successfully increase the participation and engagement in it.

Spain (ES)

The promotion and use of the platform in Spain

The promotion of the platform in this country was made from July to September 2022. More than 400 applicants were interested in the teacher's development program that included the use of the platform.

In order to use the platform some translations were made and videos from Spanish teachers were added. Besides, some guidelines and examples of teaching materials were also added and they were specifically linked to the Spanish curriculum.

In Spain, the use of the platform was embedded in the context of a 60 hours Teacher Professional Development (TPD) course. The teachers that were chosen to participate in the TPD course were picked by using the normal criteria used by the STEM teacher professional development centre (years of teaching experience, experience in teaching innovation, etc.)

During the TPD course, Spanish teachers were encouraged to explore the different resources of the platform so they could link them to their motivations and needs. They were also supported to be able to adapt those resources to their own practice and the current Spanish curriculum.

Once a month, some TPD activities were planned to encourage teachers to share their experiences through the forums. They considered that the international forum was not as successful as expected due to the language barrier.

In addition, particular sessions were planned to give support and guidelines and to invite teachers to fulfil the corresponding questionnaires for evaluation purposes.

The Spanish Case Studies

The Spanish case studies were focussed on 5 different teachers purposes chosen according to their engagement with the course and the Teach4life platform. Four of the teachers participating in the case studies were women and one was a man. The age range in this case was from 42 to 59 years old, and their teaching experience, except from two of the teachers, was over 16 years.

At the moment of carrying out the case studies, the position of the five Spanish participants was as in-service teachers. Four out of five of the participants mentioned their interest in changing position when they were asked about it.

When asked about the barriers that they identify in their competence development, the teachers mentioned the lack of training and changes in legislation and instability as the main factors. In Spain, the implementation of the 3C4LIFE project coincided with a change in the educational legislation, which made it clear the need to support teachers in the implementation of changes in curriculum and teaching approaches, providing them with appropriate TPD and favourable conditions.

Regarding the challenges for collaboration, teachers said that time is the main factor, which makes it very difficult to coordinate meetings with other teachers from the same and different areas.

Lastly, for career development the main barriers are time and high bureaucratic load. Teachers feel that the increase in bureaucracy suffocates them and takes away the time that they could use to grow professionally.

In order to keep growing professionally, teachers need more training and they need it to be recognized as part of their regular schedule (within their working hours). On the other hand, to improve collaboration, teachers think it is necessary to allocate time and spaces to collaborate with partners, they need more time and more support from their institutions.

In relation to the general experience using the platform, teachers found context-based teaching materials really useful to deal with what in the new school curriculum is known as learning situations characterised by being linked to real-life contexts providing interesting opportunities for meaningful and competence-based learning. They consider these teaching materials as especially suitable to be used in their classrooms on a day-to-day basis. Therefore, the elements that they found more interesting about the platform were the competence section and learning situations. The competence section was generally perceived as very valuable, due to the materials that were available there, the learning situations and the variety of disciplines with activities and examples.

As for the career section of the platform, some of the teachers mentioned that they were provided with a lot of informative content, but they were already familiarized with many of the professional options available in the platform. On the other hand, in some cases they

suggested providing more detailed or concrete information in relation to the teaching career.

Lastly, the collaboration section was also very useful because the exchange of experiences was very enriching for the teachers. Forums were in part good for sharing experiences, but teachers identified that sometimes not all the learning experiences were commented and did not receive feedback, so they suggest to create little groups for the forum so everyone can get feedback. Finally, they said that the access the forums designed for teachers' collaboration should be facilitated.

Turkey (TR)

The promotion and use of the platform in Turkey

The promotion of the platform in this country was made mostly through different platforms on social media, however the Ministry of Education also promoted the platform through its network. The promotion was successful since over 600 applications were received to participate in the implementation process of the teach4life platform.

In relation to the national adaptations made, the Turkish team included other career opportunities that were popular in Turkey and that were not as known as the initially suggested for the platform on an international level. They also made a few changes in the collaboration section, where they organized the questions to make them more interesting to teachers.

The platform was not offered in the context of a TPD course but they organized online sessions and provided support via email to the teachers when necessary. Teachers also were suggested to explore the platform in a specific way and specific questions were posed to stimulate the participation in the forums and to motivate teachers' collaboration. There was a special focus on allowing teachers to formulate questions that they wanted to be answered. However, teachers reported that it was not as successful as they expected.

In addition, teachers were encouraged to fulfil the corresponding questionnaires for evaluation purposes.

The Turkish case studies

In order to choose the teachers who would participate in the Turkish case studies, several criteria were applied: differences in age, engagement with the platform posing interesting questions and participation in the evaluation, fulfilling questionnaires before and 3 and 6 months after initiating the use of the platform.

As all of the partners that participated in this project, Turkey presented five cases focussing on 5 different. Three of the teachers participating in the case studies were women and two were men. The age range went from 29 to 55 years old, and their teaching experience was over 8 years, two of them, more than 20.

At the moment of the studies, the position of four out of the five participants was as teachers. One of the participants mentioned his interest in changing position, when he was asked about it.

When asked about the barriers that they identify in their competence development, teachers mentioned the lack of time as the main factor. The curriculum load is very heavy and they mentioned that it doesn't leave a space to improve themselves. They also expressed that the place where they work has a lot to do with their opportunities for competence development. They also referred to the working conditions, economic factors and low wages for a demanding profession, what goes against teachers' high performance.

Regarding the challenges for collaboration, teachers mentioned the unwillingness of some of them to collaborate and share their work. According to some statements, teachers feel uncomfortable sharing their work for various reasons: Some of them do not get the recognition they deserve; others want remuneration for their work, etc. Other important element is the lack of time due to their current work overload.

As a summary, the main difficulties that teachers encountered for career development are the lack of time a high workload and low teaching motivation. They feel that they do not have enough time due to their current workload to orientate towards their career development. Some of them also mentioned that motivation is crucial and some teachers lack it to be able to overcome the difficulties that they find along their way.

In order to keep growing professionally, teachers mentioned that they needed to fulfil their personal goals first, for example, one of them mentioned he needed to improve his English. They also made emphasis in the fact that it was not only important to receive proper training, but to receive certificates to be able to prove their competences.

On the other hand, to improve collaboration, they think that teachers' view about it must be changed. They also mentioned that it would be more motivating to be able to interact in person (face to face rather than online) with their partners. It would also be motivating to receive remuneration for their work.

The general experience with the platform was good, they found it very useful and mentioned they valued the content in the career and competence sections. They suggested that the forum needed to be improved as well as the way the platform is structured. More information should also be uploaded.

For the teachers in Turkey, the career and competence sections were the most useful, many teachers expressed that through the career part, they got to know about opportunities they ignored. As for the competence section, it was extremely valuable because the examples offered and the material directly helped teachers in their classrooms, sometimes answering questions or problems they were dealing with, before.

As for the career section of the platform, the teachers mentioned that they were provided with a lot of informative content. Some of them had the opportunity to know about new opportunities and found it very enriching to see things from a different perspective. Teachers noticed that the majority of opportunities were inside Turkey, and they would like to have information about opportunities abroad. They would also like to see more diversity of examples in this section.

The competence section was perceived as valuable among teachers, especially the socio-scientific issues section. Teachers mentioned it was very inspiring for them to find the right resources that they can really use in their classrooms. One of the comments about the examples in this section was that they were made in the context of European education, and they needed it to be more related to the Turkish context.

Lastly, the collaboration section was also very much appreciated. Teachers enjoyed the opportunity to build partnerships with colleagues from different countries and to give and

receive feedback motivated them. When asked about how to improve teachers' collaboration, they suggested to provide specific time and spaces where teachers can meet face-to-face for this purpose.

Germany (DE)

The promotion and use of the platform in Germany

The promotion of the platform in this country was made via social media, newsletters and some education fairs. In order to use the platform in this country, German partners made adaptations in the career part. No new teaching materials were added to the platform. They encouraged the use of the platform by dissemination and exploitation activities and monitored its use through a web analytics platform that gathers information about the visitors' behaviour.

The German teachers were given key questions in order to stimulate participation in the forums, and they received incentives for fulfilling the evaluation questionnaires.

The German Case Studies

Three out of the five teachers participating in the case studies in Germany were women and two were men. The age range in this case was from 25 to 53 years old, and their teaching experience, except from two of the teachers who we don't provide information in this respect, was over 6 years.

At the moment of carrying out the case studies, the position of two out of the five participants was as teachers. Two of the participants mentioned their interest in changing position when they were asked about it.

When asked about the barriers that they identify in their competence development, German teachers mentioned the lack of motivation and the need for better training as the main factors. Some of them felt guided at the beginning of their career and then they were left alone to independently develop those competencies, which according to them, was a factor that decreased their motivation.

Regarding the challenges for collaboration, teachers mentioned lack of resources and time, they mentioned that they lack a free space to share their experiences and that the focus of the system has never been on stimulating the collaboration among teachers.

In addition, they consider that the main barrier for career development is the lack of time. Teachers find it very difficult to attend training or professional teaching programs because they are often burdened with numerous tasks. Some teachers mentioned that career opportunities are very limited for teachers, because most of them are in the administrative areas.

In order to keep on growing professionally, teachers expressed the need to have more training and a more regular and structured collaboration with peers. On the other hand, to improve collaboration, teachers think it is necessary to have less bureaucracy and flatten the hierarchies.

The general experience of the teachers using the platform was positive, they mentioned it was simple and well structured, and some teachers also felt that it facilitates the clarification of important questions and promotes interaction among the educators. Some suggested that the awareness about the platform should be increased, so that teachers and people of interest get to know that the platform exists and that it provides them with a large variety of useful information.

Teachers found the career and cooperation sections very useful. They also valued that the platform offered such a variety of material, as well as suggestions for solutions of important questions, controversial contexts and that it can all be directly integrated into their lessons.

As for the career section of the platform, the teachers mentioned that they were provided with a broader perspective on the teaching profession, revealing career paths beyond the conventional roles of teacher and school leadership which was very enriching. They enjoyed the videos where they got to see people sharing very personal experiences and this motivated them.

The competence section was perceived as valuable among teachers, especially the controversial contexts section, teachers mentioned it was very useful for gaining ideas and insights. Not many suggestions were made for this section, except for more videos.

Lastly, teachers mentioned that they did not find the collaboration section effective. For some teachers the participation in the forum did not succeed and they suggested that in future occasions, teachers from similar areas who could collaborate should be put in contact for future collaborations.

The Netherlands (NL)

The promotion and use of the platform in The Netherland

The platform was launched in October 2022 and its promotion was made via e-mail, and social media. They did not offer the platform in the context of an official teacher development course. In the Netherlands, in order to encourage and monitor the use of the platform they sent emails to the group of participants. Teachers were not specifically directed to use the platform in a particular way, but they explored it freely, according to their needs and motivations.

The Dutch Case Studies

The teachers who took part in the Dutch case studies were selected purposefully according to their age and their initial background, trying to include teachers with a background in different STEM disciplines.

As the rest of the, The Netherlands provided 5 case studies focussing on a different teacher each. Two of the teachers participating in the case studies were women and three were men. The age range in this case went from 29 to 60 years old, and their teaching experience except from one of the teachers, was over 10 years.

At the moment of carrying out the case studies, the position of the three out of the five participants was as Master students. Three of the participants mentioned their interest in changing position.

When asked about the barriers that they could identify for their competence development, the teachers mentioned the lack of support as the main factor. As for the obstacles for collaboration, time was a big one. They consider that it is very challenging to find time and space to collaborate with other teachers.

Lastly, for career development the barrier that they mentioned had to do with what happened after the pandemic. Teachers said that they used to have training days at school, but it had to stop due to this particular situation.

In order to keep growing professionally, in general, teachers need more time to fulfil their goals, training is fundamental for them. On the other hand, to improve collaboration, teachers think it is necessary to allocate time, spaces and colleagues who are ailing to collaborate. It is also a school board's job to understand how to innovate and make cooperation effective.

The experience with the platform was in general satisfactory in this country. Some teachers made special emphasis in the usefulness of the information available, interviews and videos but they also made observations about the forum and missing material for specific subjects. For example, they mentioned that in the competences section there was no information about maths. Suggestions were mainly focused in adding more material for diverse subjects.

They found that the career examples were the most useful and interesting element in the platform.

Reporting on key issues on the basis of research evidence from the qualitative analysis

Elements of the platform best valued for career advancement

When asked about the most interesting element to know about different career pathways, nearly all the countries and a good number of teachers mentioned the videos, mainly because they provide personal and interactive insight into the teacher's professional paths.

"The only useful thing is that our Vice-Minister for Education is a very ordinary person who started his career as a school teacher. This tells any teacher that you can be not only a teacher, but also a headmaster, even a minister of education, a vice-minister. It is his success story that with just a simple, down-to-earth life experience, he can work like that" (Case n 4) LT.

"It was the videos. That is, the interviews being there with people's experience and them giving personal testimony" (Teacher Teresa's interview) PT.

"Especially for those starting out in their career, if they are not aware of this various information, I think the platform is helpful" (Teacher Vasco's interview).

"The career examples (both video and a short description) can be very supportive for new but also for 'career-changing' teachers" (Case n 1) NL.

Also, when asked this question, an appreciable number of teachers answered that the clear categorization in the platform, meaning the clear and structured information available, was what made it possible for teachers to understand their different career pathways:

"The clear categorization and listing of different roles and career possibilities available within the teaching profession. This feature helped in clarifying distinctions between various roles and provided a comprehensive view of potential career paths, thereby aiding teachers in their career exploration and decision-making processes." (Observer) DE.

How did the platform support different career pathways

Although some of the teachers had previous knowledge about career pathways related to the profession, the majority of countries and a large number of teachers expressed that the platform helped to explore different career pathways. For instance, the platform introduced them to some career options or related positions of which they had no prior knowledge:

"(...) some I didn't know. The mentoring one I think is something more or less recent. (...) assessment coordination, I didn't know either." (Teacher Teresa's interview) PT.

One of the key features was the provision of structured overviews of different career possibilities, showcasing diverse career paths, exposing teachers to a variety of options in educational authorities, government offices, schools, universities, and abroad. The

platform provided detailed descriptions of each career pathway, along with the necessary qualifications and potential salary ranges:

"I found the information on career pathways very enlightening. It opened up new possibilities for me." The platform "[...] should have been there ten years earlier" (DE case studies).

In addition, the career section increased teachers' motivation to pursue their own career pathway, thanks to people who have developed their careers:

"My motivation to develop my career was revitalized by seeing my peers in the videos, and it helped me realize that I should pursue a PhD." (Interview from case 3 TR).

Suggestions for improving the career pathways in the platform

The largest part of participants suggested aspects that can be improved in the platform in terms of encouraging teachers to explore different career pathways that were related to the teacher profession. The biggest part of those suggestions had to do with the necessity to provide more information and details:

"Short descriptions of the references to the sources could be provided" (Case n5, LT).

"(...) I think it would be important for this information to be available and for people to be more aware that, once in a while, there are vacancies for certain things for which they can apply. (...) There should be one or more places where these vacancies can be seen. (...) There are people who may even think that a certain path is interesting, but then when they see the requirements of what is needed and the conditions that are necessary, they give up and still find it interesting to apply." (Teacher Vasco's interview, PT).

Some of the participants in the national case studies also suggested that videos should be offered in a bigger platform to increase their accessibility and usability:

" This platform should be integrated in a Dutch platform, for example vohonetwerken.nl" (Case 5, NL).

Another important suggestion that was mentioned repeatedly had to do with the information about permanent positions for teachers and to distinguish among positions that entail a change in salary from those that just bring different roles or responsibilities:

"I would suggest including one-person positions with responsibilities and without financial compensation...they could appear in another section on Collaboration within the school" (Case n 3, ES).

For instance, teacher André (Portugal) highlighted the lack of more permanent positions in the platform. He referred to examples of temporary positions held by colleagues and expressed his wish to find more permanent activities for teachers. He questions himself whether it was easy to find such opportunities within Education in Portugal:

“What I missed maybe were other posts that eventually exist. Right now, I’m not remembering any. It is not easy to find, maybe something more permanent that is not ephemeral. (...) We have to find these people. I don’t know if the scheme of the Ministry of Education, in this country, is that simple, if in other ministries of education, in other countries, there are more permanent jobs, than those temporary ones by invitation” (Teacher André’s interview, PT).

In which way did the platform motivate teachers

When asked about the way that the platform motivated teachers, a very large number of them answered that having access to useful material, especially in the competence section, was very motivating. The platform offered them a large variety of materials and activities that they could use in their own classrooms:

“The most useful area is the Competences area, which provides practical examples that can be used in your own lessons or are useful in preparation for the lessons” (Cases n 1, LT).

“(...) the way the activities are placed by themes is interesting, because if there is a subject that we are working on in class, that has more focus on one of those areas, we can quickly go there and choose activities. So, the platform is very helpful here” (Teacher Teresa’s interview, PT).

“I found the competence section very interesting because it provides practical ideas for the classes.” (Case n 4, ES).

Another element that was mentioned by the teachers was that the platform providing them with new points of view about the teaching career:

Teachers recognized that the platform broadened their view of the teaching profession, showing that it was not only limited to the classroom but offered other career possibilities.

“(...) when I saw the videos I thought “look here’s something I haven’t done yet and I could do” (Teacher Maria’s interview, PT).

“The platform acted as a source of inspiration, motivating teachers to explore different ways within teaching and consider innovative approaches to their roles” (Observer, DE).

On the other hand, there were some teachers who expressed that the platform did not change their motivation.

“The platform itself has not changed my motivation” (Case n 4, ES).

“Motivation varies from teacher to teacher and does not motivate teachers who already know these subjects” (Observer, TR).

“However, it is noteworthy that there were also mentions of the platform not significantly altering the motivation levels of some teachers, as it confirmed pre-existing notions without providing a clear pathway to achieving those goals” (Observer, GE).

How views about the teaching career changed as a consequence of the platform use

Some of the teachers participating in the case studies commented that the platform changed their view about the teaching career by expanding their perspectives and showing them new possibilities. For those teachers, the perspective regarding the profession changed by showcasing a diverse array of career paths.

“Yes, it has changed. It gives us a notion of the type of functions that we can perform in addition, that we can play in parallel, but this also requires a lot of things, that is, it’s not only about wanting to do it. You have to know the conditions (...)” (Teacher Teresa’s interview, PT)

“Yes, I am a teacher, but I asked myself, what else can I do? I also think that I should continue my education to follow the agenda. ... yes, I mean, I can do a PhD; I am researching how to do this, and I have added it to my career planning right now...” (Interview case n1, TR).

Elements best value for competence development

The majority of teachers who answered to this question answered that the competence section in the platform, through all the different material available, was interesting and could help them to develop skills for the teaching profession nowadays. Practical, real-world examples were invaluable in this respect:

“Thinking about the different approaches: inquiry-based teaching, real-life contexts and socio-scientific issues (...), What I see is the way tasks are proposed, starting from a problem-issue, stimulates the development of the competences that are currently intended, both for the students themselves and for the teachers” (Teacher Vasco’s interview, PT).

“...documentation and examples of learning situations” from the competence section (Case n 1, ES).

"Physics and chemistry learning situations, since they are directly related to my subject." (Case n 2, ES).

"All competence materials, since they use different materials and designs that open your eyes to other knowledge and other strategies" (Case n 3, ES).

"It is difficult to find examples for socio-scientific topics in math, and relating it to authentic contexts is really useful. Those sections were very useful for me, and I used them in my lessons" (Interview n 3, TR).

Suggestions for improving the competence section

A large number of participants coincided that teacher's involvement should increase. They suggested that teachers should get more involved in the creation and validation of the content. Also, giving recommendations to their partners along the way.

"I would like some learning situations [competence materials] to have feedback...difficulties observed during their implementation in the classroom and possible solutions to those difficulties" (Case n 3, ES).

"I have missed a section about teaching Geology."; "It could be interesting if there was a section where each teacher could upload a complete learning situation and the rest of the teachers could expand or improve it in some way" (Case n 4, ES).

Also, several teachers who answered this question expressed the need for more material in the platform: more examples, resources, competence materials, etc.

Teachers miss more competence materials related to other subjects such as ICT, Computer Science or Geology: *"I suggest creating and sharing more examples of learning situations from each subject" (Case n 2, ES).*

Furthermore, Lithuanian partners report about teachers arguing that it was necessary to have more practical examples (Case n 1, Case n 2, Case n 4, Case n 5, LT).

Half of the countries suggested enriching the classification of the examples available in the platform:

"By level: from example from easy to more challenging and creating a category for students with special needs" (Case n 1, LT).

"(...) in my opinion, (the tasks) are more geared towards secondary school, because they are more complex. But we can adapt them and make them simpler also for primary school ..." (Teacher Vasco's interview, PT).

How did the platform support teacher collaboration

A large number of teachers mentioned the forum as an element that made it possible for them to access colleague's experiences and getting to know the practices in each country:

"All the respondents appreciated the international forum as an opportunity to find out what is happening in other countries and what practices are in place" (Case n 4, LT).

Some of them also mentioned the training sessions, they said they played a big role in promoting collaboration. They especially highlighted the possibility of accessing other colleague's; experiences:

"By having access to the answers that all colleagues posted there (on the forum), we were also able to have an insight into the difficulties that other teachers felt, their opinion, their testimony, and their practice. I think this helps, it's as if we were all together and each one tells his or her experience. Only, instead of just saying it, it's all written down. And we can read it. And learn a little bit from each other's experiences" (Teacher Teresa's interview, PT).

However, there were several teachers taking part in the national case studies who mentioned that they were not completely satisfied with the collaboration section of the platform. They said that the collaboration section of the platforms should be reviewed in terms of structure, accessibility and/or navigation. They added that the forum seemed not to be so user-friendly and did not allow them to access a real exchange of experiences/opinions:

"On the platform, more real collaboration is needed in order to carry out a real exchange of opinions through the forum communications" (Case n 2, ES).

"Opinions can be exchanged through the forum but I think it remains a bit limited and as I said before, it is not clear to me how it is structured" (Case n 4, ES).

"The collaboration feature of the platform was predominantly perceived as ineffective. The asynchronous form of communication was found to be ill-suited to the fast-paced nature of teachers; everyday lives, resulting in delays that hindered real-time interaction and support. Additionally, the requirement to type in questions and answers was deemed time-consuming, further detracting from the user experience" (Observer, DE).

There were also suggestions about building on other already existing teacher communication platforms:

"Maybe it is better to link it to teacher education institutes, or teachers' associations such that people can more easily find and access it" (Case n 1, NL).

Changes in teachers' view of collaboration after using the platform

We identified different situations in this respect. There are teachers that thought that their views about teacher collaboration had not changed as a consequence of the use of the platform, that there were no changes directly associated with the use of the platforms, even though they see collaboration as a very important aspect of their professional development. On the contrary, there were other teachers that thought it had changed:

"It has not especially changed (my view about teachers' collaboration)" Case n 1, ES).

"It has strengthened the positive vision of the collaboration that I already had" (Case n 3, ES).

"Honestly, there hasn't been any change" (Case n 4, ES).

"It has improved it, if I was already convinced that we had to collaborate more, now I am even more so" (Case n 5, ES).

"(...) it changed my view on the collaboration part, because there we were really collaborating with colleagues, not only preparing a task for the students. We were in a team. "Let's do this!" So, I think it was very interesting, I really enjoyed the training sessions. It made me take on the task and work as a team. It reminded me when I was a student (...) and that really changed my view. We had been doing some STEM activities for three years and I always had this question: Why don't students (in traditional math classes) do well? But then, when we do these types of activities, they do them?" (Teacher Maria's interview, PT).

"Actually, it changed it like this. It brought to my mind the question mark that I had just set up: we expect children to cooperate, but do we cooperate? As I said, I have been in many similar platforms and projects, but other projects have never raised this question mark before. This platform raised this question mark for me." (Interview n 4, TR).

Suggestions for improving teacher collaboration

In order to improve the elements of the platform aimed at promoting teacher collaboration, teachers made different suggestions:

"More dissemination is needed, foreign forums are more interesting" (Case n 5, LT).

"It (the platform) should provide telegram-style quick access like...so you can see who is writing live directly" (Interview 1, TR).

“...chat rooms, or discussion boards: to have direct communication and facilitate networking (observer, DE).

“...mentorship programs: pairing less experienced teachers with veterans in the field” (observer, DE).

“...digital round tables to facilitate direct exchanges and discussions, allowing teachers to share insights, experiences, and best practices in a more interactive and engaging manner...(observer, DE).

Some of the teachers also suggested adding a section to facilitate the possibility of providing feedback about teaching materials as a way to stimulate teacher collaboration:

“Perhaps I miss a section explaining the advantages of collaboration when designing learning situations” (Case n 3, ES).

“It could be interesting if there was a section where each teacher could upload a complete learning situation and the rest of the teachers could expand or improve it in some way” (Case n 4, ES).

General suggestions for the platform improvement

In general, many suggestions were made regarding the navigability and organization of the platform:

“In terms of the platform... it is necessary to improve navigation, from my point of view it is confusing. Because things are a little hidden. The boxes that appear at the bottom, which require me to click, would only be of interest if that click were to open very long texts. As the texts are not completed, they can be immediately visible, avoiding clicks, causing more reading, more exposure” ...“Reorganize the videos on a separate page, with proper descriptions and categorization, making it easier to navigate and index” . (Teacher Andre’s interview, PT).

“Evaluating the platform’s applicability to various potential target groups, such as high school students, teacher students, and policy makers, especially with the goal of reducing the teacher shortage in certain areas of Europe” (observer, DE).

Conclusions and recommendations for further scaling up

In relation to the impact of the policy measure on teachers' motivation, results from the evaluation of the project show that the teachers taking part in the field trials have a highly motivated profile, making it difficult to detect significant changes in motivation. However, results show that the effect of teach4life platform on teachers' motivation not only depend on the national context, but also on the particular teacher focussing on, as revealed by data from the 30 national case studies. Those teachers reporting an effect of the platform on their motivation referred to the utility of the teaching resources provided, the existence of videos sharing inspiring testimonies in the career development section or the opportunity to exchange teaching resources with colleagues. Therefore, the impact of the platform on teachers' motivation was attributed to different features such as the utility of the resources used, some inspiring videos about different career pathways and the possibility to get interesting teaching resources.

Regarding the career section of the platform, teachers mentioned that it provided them with a broader perspective about the teaching profession, revealing career paths beyond the conventional roles of teachers in schools, which were considered very enriching according to teachers' comments. They enjoyed the videos where they got to see people sharing personal experiences. Some teachers commented that the platform changed their view about the teaching career by expanding their perspectives and showing them new possibilities. For those teachers, the perspective regarding the profession changed by showcasing a diverse array of career paths. Teachers highly appreciated the opportunity to learn about different teaching trajectories they did along with key information describing the requirements and conditions to take those positions.

Nevertheless, although different teachers taking part in the national case studies expressed their desire to explore or take up new positions within their teaching career, as a result of their experience with the platform, it seems to depend on teachers' previous experiences and motivations and there was no clear pattern in this respect.

When asked about suggestions for improving the career section, teachers mentioned the possibility to provide more details about salary, possible duration, job offers, opportunities for career development abroad and in some cases, providing a clearer view of the basic requirements.

The aspect of the platform best appreciated by teachers is the one dedicated to the development of teaching competences. This section mainly focusses on classroom examples including videos, solutions and guidelines about how to use those innovative teaching materials in the classroom. Teachers especially appreciated ready to be used materials that can be easily transferred to their daily teaching. In order to increase the materials' usability teachers pointed out at the need to link them to the school curriculum.

When teachers were asked about how the competence section of the platform could be improved, they referred to the possibility of including materials for other subjects not considered so far, such as Geology (Earth Sciences) or the use of new technologies. They also suggested integrating teachers' feedback about the implementation in the classroom

of any of the teaching materials. It would provide a sense of authenticity and offer key information about to what extent those materials have been proven to be useful or valuable for other teachers.

In relation to the potential of the teach4life platform to stimulate teacher collaboration, results show again that it depends on the particular teacher being asked and the national context. In general, teachers consider collaboration as a powerful source of professional development through the exchange of resources and experiences with other colleagues. However, they consider that forums are not the best way to support teachers' collaboration. They look at them as statics, linear and not interactive enough. Some teachers said they would prefer other tools such as telegram for this purpose, while others pointed out at the pertinence of using already existing channels for teacher communication and collaboration. In addition, concerning international forums, although there might be considered especially interesting for some teachers (for instance in Lithuania), there might be language barriers avoiding a more fluent and frequent communication among teachers on an international level. In addition, when the use of forums for teacher communication do not occur in a spontaneous way, it seems to require additional encouragement and moderation to stimulate and support teachers' participation.

When teachers were asked about the main barriers for teachers' collaboration, career advancement and competence development, they refer to the lack of time, a huge and increasing bureaucratic workload, the lack of social and professional recognition, the importance of paying attention to authorship attribution when encouraging the exchange of teaching resources among teachers and the need to provide incentives and to allocate specific time and space for teacher collaboration and professional development during the school schedule and their working time.

In relation to the impact of the platform on teachers' motivation, collaboration and competence development, important differences were found between countries embedding the use of the platform within an official course, from those countries offering the platform in a non-regulated way, highlighting the need to guide and support teachers in the process of innovation. In this respect, results show a bigger impact of the platform on teachers' beliefs and practices, in those countries which have offered the platform in the context of a teacher professional development course (this is the case of Portugal or Spain). This is also the case of Turkey, where teachers were provided with ongoing support throughout the whole process.

Finally, teachers participating in the case studies also made some suggestions to make navigation through the platform easier and they suggested the possibility to consider different users' profiles such as master students or student teachers.

Annex 1. Partners' Case studies report



Partners' case study report

GERMANY

Description of how the 3C4LIFE platform has been adapted and used in Germany

According to the project description, any partner should report about 5 cases to provide an in-sight into how the platform has been used by different teachers in any country.

We assume that the implementation of the platform (how it was promoted and adapted) is similar for all the cases reported by any partner. If you consider that your responses to the table below will vary depending on the individual case being reported you should provide a different table for any case.

Please, respond to the following questions to illustrate how the platform has been promoted and adapted in your country:

Questions	Responses of partners from: GERMANY		
1. When and how was the teach4life platform promoted in your country and how successful was this from your point of view?	April – July 22	Promotion of the project via linkedIn, Search for participants for field trials	Reaching national/international STEM stakeholders
	August 22	Instagram promotion teaser career videos	Reaching national/international STEM stakeholders
	September 22	Promotion teachlife platform via social media accounts	Reaching national/international STEM stakeholders
	October 22	Science Days promotion of the project	Reaching national STEM stakeholders and teachers
	November 22	Presentation at the DAAD	Networking with other national STEM institutions
		Matrix – network meeting	Networking with other national STEM institutions
	December 22/January 23	Social media posts –	Reaching national STEM stakeholders and teachers

		promotion platform	
		Article at ZELF und ICSE Newsletter	Reaching a lot of teachers in international and national contexts
		Meeting student counselling, discussion	implementation teach4life platform for student counselling career par and videos are of great interest
	February 23	Participation Youth researchers – advertisement platform	A lot of teachers from regional context can be reached
	March	Participation at Fair Didactica	Education Fair, exhibition stand for ICSE, participation of important stakeholders in Education
	April	Text published at Scientix Digest	A lot of STEM stakeholders through Europe can be reached
		ICSE Newsletter	International STEM stakeholders can be reached
	May	Participation International Conference ETE in Leiden	Oral presentation session – reaching a lot of international STEM stakeholders and teachers
2. What kind of adaptations have you made to the 3C4Life platform for its use in your national context? Why?	National adaptations were only made for the career part of the teach4life platform. The career section has been adapted to the national and local framework for teachers in Germany as they vary between nations.		
3. Have you added new/different materials/examples? If your answer is yes, Which ones and in which way are they	No new materials were added to the platform		

<p>different from the international version? Describe them.</p>	
<p>4. Have you offered the 3C4Life platform in the context of an official teacher professional development course? If your response is yes, explain the characteristics of the course (number of maximum participants, number of hours, existence or not of specific support and following up by teacher educators, etc...).</p>	<p>No</p>
<p>5. How have you encouraged and monitored the use of the platform by participants?</p>	<p>The use of the platform was encouraged by dissemination and exploitation activities (see question 1)</p> <p>The use of the platform could be monitored via Matomo, which is an open-source web analytics platform that allows website owners to gather data on their visitors' behaviour and usage patterns. It provides insights on various metrics, such as page views, bounce rates, and user demographics, among others, and helps website owners make informed decisions to improve their online presence.</p>
<p>6. Indicate key dates when you performed actions to promote the use of the platform (social media posts, platform workshops, strategic meetings...)</p>	<p>See question 1</p>
<p>7. Have you suggested particular paths when exploring and using the 3C4Life platform? If your response is yes, explain which ones and why.</p>	<p>No</p>
<p>8. What measures were taken to initiate collaboration in the forum? How successful were they and why?</p>	<p>Key questions were indicated to initiate collaboration in the forum</p>
<p>9. How have you ensured the number of evaluation questionnaires before using the platform, 3 months after and 6 months after starting to use the 3C4Life platform?</p>	<p>The number of evaluation questionnaires were ensured by providing incentives for the participation at the field trials.</p>
<p>10. How have you selected participants for the 3C4Life case studies?</p>	

Description of individual cases in Germany

Include all the relevant information to characterise the teachers participating in your national case studies. Fill one form for each of the 5 teachers participating in your national case studies. Any partner should provide 5 forms corresponding to any of the cases (any form will be considered a case).

You can use your own knowledge about the teacher and all the information you collected about him/her before and during the interview (see the templates provided for these purposes).

Case number: 5

Country: Germany

Teacher/case nº 1	
Age	25
Gender	Female
Pseudonym	Rebecca Bratwurst
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	Master's student in Mathematics and Physical Education at the University of Education in Freiburg, Baden-Württemberg
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Masters Student
Teaching experience/professional development of the teacher	
Why he/she decided to become a teacher?	She decided to become a teacher because they believe that education is a tool that can empower people and transform lives. She is passionate about making a difference in the lives of students and helping them reach their full potential. She also finds joy in seeing students grow and develop both academically and personally. Additionally, she appreciates the

Teacher/case nº 1	
	opportunity to engage in continuous learning and professional development as a teacher.
Is he/she planning to change their position? If yes, which position and why?	nA
What are the main barriers for teachers' competence development from his/her side?	
What are the main challenges for teachers' collaboration from his/her side?	Rebecca Bratwurst believes that teachers might not collaborate due to several reasons. She speculates that some might not see the benefits of collaboration, or they might find it too strenuous. Drawing parallels with group work in schools or universities, she observes that often one person takes on most of the work while others may recline, leading to potential negative experiences. This might make teachers feel that collaborating results in more work for them. Additionally, she thinks that many teachers might have been following their current methods for years and may not be open to change, preferring to navigate through their profession independently.
What are the main challenges for teachers' career development from his/her side?	Rebecca Bratwurst identifies several main challenges that teachers face regarding their career development from their perspective. One of the primary obstacles is the time factor. Teachers are often burdened with numerous tasks, including organizational duties and parent-teacher meetings, leaving them with limited time for career development activities. Another significant challenge is the need for teachers to be relieved of their teaching duties to attend training or professional development programs. This is often complicated by staff shortages, making it difficult for teachers to be absent from their classes as there may be no replacement available, or the classes might have to be cancelled. Furthermore, Rebecca mentions the financial aspect, where teachers might not receive approval or funding for professional development activities, forcing them to bear the costs themselves. This financial burden, coupled with the additional workload and potential disruption to the class schedule, can deter teachers from pursuing further training or education.

Teacher/case n° 1	
What would he/she need to keep on growing professionally?	nA
What would he/she need to improve their collaboration with other teachers/colleagues?	nA
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	<p>Rebecca Bratwurst describes her general experience using the 3C4life platform, highlighting three main areas that the platform focuses on. Firstly, she mentions personal development, discussing the career opportunities and various possibilities for further education available not only at the national level in Germany but also in other countries. However, she notes a challenge in accessing information about other countries as it was presented in a different language, which she didn't understand.</p> <p>The second area Rebecca talks about is cooperation, emphasizing the exchange between teachers. The platform facilitates the clarification of questions and promotes interaction among educators, serving as a medium for communication and exchange of ideas.</p> <p>Lastly, she touches on competencies, exploring how the platform helps teachers in self-development by suggesting activities and strategies they could try. She mentions seeing task suggestions such as inquiry-based learning and notes the availability of videos for users to watch and learn from.</p>
Which concrete suggestions of improvement did he/she have?	<p>Rebecca suggested improvements for the platform, emphasizing the need for simplification and faster, easier communication. She found the current structure to be cumbersome and the communication too indirect and slow. Comparing it to other online platforms, she suggested making the platform more user-friendly, with instant communication features and a more straightforward design. She believes these changes would make the platform more dynamic and flexible, enhancing its utility for users.</p>

Teacher/case n° 1	
<p>Which elements of the platform did he/she find most interesting/useful?</p>	<p>Rebecca Bratwurst found different elements of the 3C4life platform to be of varying usefulness. She appreciated the concept of the cooperation section, but noticed that it lacked active participation. There were few comments, and when comments were present, there were no responses, leading her to question the platform's effectiveness for exchange. She mentioned that she and her peers were unaware of the platform, suggesting a lack of awareness among the target audience.</p> <p>Regarding the competency section, Rebecca felt that much of the content was already familiar to her from her studies. She noted varying quality in the videos, with some being good and others less professional. While she did watch the videos, she didn't find them to be her go-to source for information as she already had access to similar content. However, Rebecca found the task examples provided on the platform to be good. She appreciated the ideas presented, especially those connecting to everyday life, as they offered alternatives to textbook material. She found these ideas helpful, even if she might not implement them exactly as suggested.</p> <p>The career section of the platform was the most useful for Rebecca. She found it helpful to have a platform that provided an overview and easy access to information, even though similar information could be obtained through Google. She particularly liked the videos in this section, which were not available for every profession but provided valuable insights.</p>
<p>Career:</p>	
<p>In which way did the platform inspire/motivate him/her to advance their career as a teacher?</p>	<p>Rebecca Bratwurst shared that the platform provided her with a broader perspective on the teaching profession, revealing career paths beyond the conventional roles of teacher and school leadership that she was familiar with. She found it interesting to see the variety of opportunities available at a glance. In the career section, Rebecca found the component on educational authorities to be the most interesting as it was an area she had not previously considered. She was familiar with the school and university settings but had not explored the realm of educational authorities, making this component particularly enlightening for her. Regarding the different elements of the platform, Rebecca favored the videos, as they featured individuals sharing their experiences, making the content more relatable and engaging. She valued the personal insights more than generic information, which she felt could be obtained from other sources. The real-world relevance and the personal touch of the videos made them stand out as the</p>

Teacher/case n° 1	
	most valuable feature for her in the career section of the platform.
How he/she finds the career section of the platform (what is good, what is missing)?	However, she didn't feel compelled to pursue options like international school service, as she found the information provided not detailed or appealing enough to motivate her. She felt that the section was not fully realized and lacked comprehensive information. While she found the topics interesting, she believed that more videos and explanations were needed to provide a clearer understanding of how to pursue the various career paths presented.
Which suggestions for improvement he/she has regarding the career part?	She recommended the inclusion of more videos, emphasizing the value of featuring diverse perspectives from different individuals and areas within the education sector. For instance, she noted that the experience of being in school leadership might vary significantly between a technical or economic gymnasium and a general education school or a primary school. Additionally, Rebecca expressed a desire for clearer guidance on career progression. She was interested in understanding the steps and qualifications required to advance to roles such as a school leader, seeking more specific information on the process and criteria for becoming qualified for such positions.
How has his/her view about the teachers' career changed in anyway due to the platform?	Rebecca Bratwurst indicated that her perspective on teachers' careers did not undergo a significant change due to the platform. While she gained new insights, particularly about educational authorities (Bildungsbehörden), she did not feel that this information fundamentally altered her view on the teaching profession.
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	Rebecca Bratwurst shared that she specifically explored the mathematics section of the platform, given its relevance to her. The topics within this section did motivate her. However, she felt that the videos and other content might be more beneficial for someone who has been in the teaching profession for a longer duration, like 20 years, and is seeking fresh inspirations and methods. Coming fresh from her studies, Rebecca mentioned that she already possesses a vast amount of knowledge and methodologies. Thus, her current challenge is more about narrowing down and deciding which

Teacher/case n° 1	
	techniques to apply and implement, rather than seeking new ones.
How he/she finds the competence section of the platform (what is good, what is missing)?	Rebecca Bratwurst found the competence section of the platform particularly interesting, especially appreciating the short videos that succinctly presented key aspects of inquiry-based learning and highlighted what to focus on. She found these videos to be a valuable resource.
Which suggestions for improvement he/she has regarding the competence part?	She expressed a desire for more practical applications and real-world examples. Rebecca would have appreciated content that demonstrates the implementation of the concepts discussed, pointing out what worked and what didn't, and providing insights on potential challenges and considerations. She mentioned that while every class is unique, having practical examples would help users evaluate the feasibility and effectiveness of the methods presented, allowing them to make informed decisions on whether or not to implement them in their teaching.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	Not at all
How has his/her view about teacher collaboration changed?	Not at all
What did he/she find most useful to support teacher collaboration?	Nothing
How he/she finds the collaboration section of the platform (what is good, what is missing)?	Nothing is good.
Which suggestions for improvement did he/she make regarding the collaboration part?	Rebecca Bratwurst expressed that the collaboration section of the platform could be improved by simplifying the user interface and facilitating more direct contact between users. She suggested the introduction of an app, structured similarly to a messenger service, where users can easily communicate with each other or directly with other teachers. This would enhance the interactive and collaborative aspects of the

Teacher/case n° 1	
	platform, making it more user-friendly and conducive to communication and exchange of ideas.
Any additional comments that he/she made about the platform:	

Teacher/case n° 2	
Age	53
Gender	female
Pseudonym	Krista Kraenzle
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>She designates her emotional relation to teaching that it is open, has a relation to society and real-life contexts and a strong relation to the respective professional orientation so that the meaning and purpose can be established directly. In her teaching, she wants to cause accompany students so that they are able to achieve their respective goals. It is important to her that students get a practical connection in their education and that they complete internships. Furthermore, it is important for her that teachers educate themselves and know the current environment and requirement of their teaching area.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	<p>She is senior lecturer (<i>Oberstudienrätin</i>) and MINT ambassador at a vocational gymnasium in Rheinland-Pfalz. Her teaching focus is technology, in detail packaging technologies, machine and plant operators, paper and print fishing, heating and air conditioning technology.</p>
Teaching experience/professional development of the teacher	<p>First, she learned an apprenticeship as a technical draftswoman. She has studied teacher training program with a focus on process engineering and economics. She also studied environmental sciences while working. She has been a teacher for 24 years now and has thus a lot of teaching</p>

Teacher/case nº 2	
	experience. Before, she was teaching at the technical university, at a dual university, at a technology school, at a master school (<i>Meisterschule</i>) as well as at a vocational school. She has been working at her current school since seven years.
Why he/she decided to become a teacher?	Originally, she is engineer. Due to an illness she decided to become a teacher because the time allocation as a teacher is better. As an engineer, she was also traveling worldwide all day long. From her point of view, as a teacher you have fixed time slots and are not on the road all day long.
Is he/she planning to change their position? If yes, which position and why?	She has ideas to change even further professionally in her field of education. <i>"I want [...] to continue to work in education but more that you can change things"</i> ¹ . It prevents her to change that she would like to change the state but she gets problems with the state because of that. <i>"That is, if I want to switch right now, the state, uh, or both states, respectively, would not have a person who could take over"</i> ² . Furthermore, she want to stay in tenure and this is also a challenge for changing jobs and states.
What are the main barriers for teachers' competence development from his/her side?	In general, she says that being tenured in one state in Germany is a problem for changing professions to another state. Moreover, a change is only possible with justification and if you have an exchange partner. Tenure is an obstacle for teachers and a windfall for the state.
What are the main challenges for teachers' collaboration from his/her side? What would he/she need to improve their collaboration with other teachers/colleagues?	The key challenges for teacher collaboration are the <i>"lack of time and free space where to share experiences"</i> ³ . Classes are very paced and teachers are usually left alone with their lessons. A fixed eight hours working day as in companies will be needed to overcome this challenge.
What are the main challenges for teachers' career development form his/her side?	Time is seen as a main challenge for teachers' career development. Furthermore, additionally acquired services that are rendered are usually not rewarded. There is also a very strong dependency to the school, as an evaluation of the

¹ *"Ich möchte [...] weiterhin im Bildungsbereich aber mehr, dass man etwas verändern kann arbeiten"*

² *„Das heißt, wenn ich jetzt in dem Moment wechseln würde, hätte das Land, äh, beziehungsweise beide Bundesländer keine Person, die das übernehmen könnten“*

³ *"Zeit und fehlende Freizeiträume, in dem man sich austauschen kann"*

Teacher/case nº 2	
What would he/she need to keep on growing professionally?	teacher can only come from the school. Furthermore, the school does not hold employee performance reviews. This means that there is also a lack of advice for the career development of teachers.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	The platform is well and simple structured.
Which concrete suggestions of improvement did he/she have?	It would be important to increase awareness of the platform, that teachers know that such a platform exists. A suggestion is to get in contact with ministries and the respective school management. A further suggestion of improvement is on the content of the competence part. The methods which are used should be explained more detailly and receive more handouts.
Which elements of the platform did he/she find most interesting/useful?	Of particular interest are the areas of career and cooperation. Teachers often haven no own network for cooperation.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	You get insights into concrete job descriptions and job possibilities, which are very informative.
How he/she finds the career section of the platform (what is good, what is missing)?	Generally, she finds the career part informative.
Which suggestions for improvement he/she has regarding the career part?	What she misses is information regarding the remuneration. The platform is focused on the state Baden-Württemberg. What would be interesting is how it is in other states of Germany that teachers in whole Germany receive their needed information. A suggestion would be to mention networks and working communities regarding the certain job and information about advisory centres.

Teacher/case n° 2	
How has his/her view about the teachers' career changed in anyway due to the platform?	<p>The career part inspired her for different career possibilities. At her school it is difficult to get concrete information on career possibilities for teachers. The career information on the platform are easy accessible and to understand and animates to search for further information regarding career possibilities.</p> <p>Her opinion on the different career paths and about the teaching profession have not change due to the platform.</p>
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	The examples shown at the platform can all be used for ones own teaching and can adapt them to their need.
How he/she finds the competence section of the platform (what is good, what is missing)?	She found the examples all very relevant.
Which suggestions for improvement he/she has regarding the competence part?	<p>If information is shared between teachers this can be used in once own lessons and teaching.</p> <p>A suggestion is to link to further specialist literature and where you can further explore the topic.</p>
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	The collaboration part has not been motivated to participate because she has her own network.
How has his/her view about teacher collaboration changed?	Her view has not changed because she could not take any benefit of the collaboration part.
What did he/she find most useful to support teacher collaboration?	See above: The key challenges for teacher collaboration are the <i>"lack of time and free space where to share experiences"</i> ⁴ . Classes are very paced and teachers are usually left alone with their lessons. A fixed eight hours working day as in companies will be needed to overcome this challenge.

⁴ *"Zeit und fehlende Freizeiträume, in dem man sich austauschen kann"*

Teacher/case nº 2	
How he/she finds the collaboration section of the platform (what is good, what is missing)?	see above
Which suggestions for improvement did he/she make regarding the collaboration part?	Suggestions would be that profiles of teachers could be created and groups of certain school types where teachers can network should be presented. There the teachers have the possibility to interact with teachers at the same school type.
Any additional comments that he/she made about the platform:	<p>Highlight opportunities for advanced study programs for teachers on the platform.</p> <p>It is important to maintain the platform regularly and keep it up to date. Furthermore, it is important to evaluate which parts are accessed the most.</p> <p>Further information regarding teacher shortages should be explained at the platform.</p>

Teacher/case nº 3	
Age	57
Gender	male
Pseudonym	Axel Adonis
Background information: <ul style="list-style-type: none"> Motivations and goals as a teacher Teaching referents School description and previous experience (only for in-service) 	<p>Family sister and broth in law are teachers</p> <p>His school lays emphasis that “[...] <i>not only teaching is taking place [...]</i>”⁵ <i>The school lays the focus on economics. Out of his view he is missing the STEM part. The school has 120 teachers.</i></p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher at a economic school in Baden-Württemberg.

⁵ „[...] Schule, die sehr viel Wert legt, dass nicht nur Unterricht passiert [...]“

Teacher/case nº 3	
Teaching experience/professional development of the teacher	He is teacher for 30 years at worked at three different schools. At his current school he is teaching for seven years. Before, he was deputy department head and supported the school principal. He is missing this part at his current school.
Why he/she decided to become a teacher?	He became a teacher <i>“out of conviction. That's what makes it fun for me, uh just to pass on knowledge, to impart it”</i> ⁶
Is he/she planning to change their position? If yes, which position and why?	Principally he is planning to change his position and he had tried to become school director or department head. Due to his age it is not possible anymore to change into such position. He has interests in the to change his job in the area of information technologies or mathematics. <i>“If there was something, I would be open to it”</i> . ⁷
What are the main barriers for teachers' competence development from his/her side?	<i>Time is not a barrier for competence development. He finds that currently there are not offered good advanced training for teachers. The trainings are too superficial and to topics which you can teach yourself. He is missing trainings with higher niveau.</i> <i>“Chat GPT will be used by EVERYONE. This will absolutely revolutionize our education system, I am one hundred percent convinced. It will be part like Google, so internet and search. This will come 100 percent”</i> . ⁸
What are the main challenges for teachers' collaboration from his/her side?	<i>„Time is always a bit of a problem”</i> ⁹ . Furthermore, he finds that there is a lot of rival between teachers. More engagement is also needed for the collaboration between teachers.
What are the main challenges for teachers' career development form his/her side?	Teachers have to develop their career more strategically. <i>“Just doing good teaching is obviously not enough”</i> ¹⁰

⁶ “... aus Überzeugung. Das macht mir Spaß, [...] einfach Wissen weiterzugeben, zu vermitteln.“

⁷ „[...] wenn es da was gäbe, ich wäre da offen [...]“

⁸ „Chat GPT wird JEDER verwenden. Das wird unser Schulwesen absolut revolutionieren, bin ich hundertprozentig der Überzeugung. Es wird Bestandteil so sein wie Google, also Internet und suchen. Das wird 100 prozentig kommen.“

⁹ [...] Zeit ist immer so ein bisschen ein Problem.“

¹⁰ „nur guten Unterricht zu machen, reicht offensichtlich nicht“

Teacher/case n° 3	
What would he/she need to keep on growing professionally?	He needs further professional teacher trainings on high level.
What would he/she need to improve their collaboration with other teachers/colleagues?	Less bureaucracy and flat hierarchy are needed for a better collaboration. He is comparing the school system with the Indian caste system and as a teacher you are at a lower cast level and it is really difficult bring ideas from the bottom to the top.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	It is quite okay. The platform is <i>“something about education outside of the normal classroom. And a little bit also outside our normal run-of-the-mill continuing education”¹¹</i> He finds the layout and design of the platform state of the art. Navigation is also okay.
Which concrete suggestions of improvement did he/she have?	He is missing some further content. Furthermore, he would be happy to find also some theoretical examples at the competence part.
Which elements of the platform did he/she find most interesting/useful?	As he is mathematic and information technology teacher he finds the mathematic and IT examples at the development part most interesting.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	Due to his age (57) the career platform is not for great interest for him.
How he/she finds the career section of the platform (what is good, what is missing)?	He finds the basic structure good
Which suggestions for improvement he/she has regarding the career part?	If possible the platform should demonstrate career possibilities in other states in Germany as well.

¹¹ [...] ist etwas über Bildung außerhalb des normalen Unterrichts. Und ein kleines bisschen auch außerhalb unserer normalen 08/15-Weiterbildungen“

Teacher/case n° 3	
How has his/her view about the teachers' career changed in anyway due to the platform?	The platform " <i>[...] should have been there ten years earlier</i> ". ¹² Than it would have been useful for him.
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	-
How he/she finds the competence section of the platform (what is good, what is missing)?	<i>"The basic trend is absolutely great"</i> ¹³ The reality should be taken more into account that students are no scientists and students have different learning levels.
Which suggestions for improvement he/she has regarding the competence part?	He misses areas at the platform where you can evaluate tasks or where you can exchange ideas for teaching below the task descriptions. Furthermore, he suggests to place mor videos on the competence part.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	-
How has his/her view about teacher collaboration changed?	-
What did he/she find most useful to support teacher collaboration?	-
How he/she finds the collaboration section of the platform (what is good, what is missing)?	-

¹² Die Plattform „[...] hätte zehn Jahre früher da sein müssen“

¹³ „Die Grundtendenz ist absolut toll“

Teacher/case n° 3	
Which suggestions for improvement did he/she make regarding the collaboration part?	-
Any additional comments that he/she made about the platform:	-

Teacher/case n° 4	
Age	25
Gender	Female
Pseudonym	Lena Müller
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	Master's student in Mathematics and Physical Education at the University of Education in Freiburg, Baden-Württemberg
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Masters Student
Teaching experience/professional development of the teacher	In addition to the Integrated Semester Internship (ISP) prescribed by the College of Education, which spans 16 weeks and begins three weeks prior to the start of the lecture period, ending in tandem with it, there are three components to the practicum. These include two day-long specialized internships under the supervision of a university lecturer, as well as a component of the internship managed by the school itself.
Why he/she decided to become a teacher?	From her childhood, her dream job had always been to be a teacher. For a time, this was replaced by the aspiration to become a hotel professional. However, after completing an internship in the hotel industry, her focus shifted back to teaching, which then became her sole interest.

Teacher/case nº 4	
Is he/she planning to change their position? If yes, which position and why?	She is aware of the various career paths and opportunities available after completing her teacher training studies. However, at present, she is solely pursuing the traditional teaching profession in lower secondary education.
What are the main barriers for teachers' competence development from his/her side?	For her, the greatest challenge lies in maintaining motivation. The development of competencies is thus left to each teacher independently and, after the preparatory service (Referential), it is not further monitored. Moreover, it is not tied to salary increments.
What are the main challenges for teachers' collaboration from his/her side?	The biggest challenge is the outdated system, where the focus has never been on collaboration among teachers. As a result, teachers currently see no benefits in exchanging ideas or collaborating.
What are the main challenges for teachers' career development from his/her side?	The aspect of motivation plays an important role here. The quality of teaching is not further monitored after the preparatory service (Referential), making it the individual responsibility of the teachers. Consequently, the development of teaching methods and further training are independent of a teacher's salary.
What would he/she need to keep on growing professionally?	At the moment, the topic of professional growth does not concern her, as she is still studying and not yet a teacher.
What would he/she need to improve their collaboration with other teachers/colleagues?	According to her, platforms that offer teacher exchange should be promoted/spread more and perhaps also stimulate discussion and exchange through controversial contributions.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	In the area of interaction or collaboration (where she also works), she has experienced that there is no exchange via the platform. Otherwise, the clear and well-structured platform has shown her new career opportunities and good concrete examples for teaching mathematics. Real-world context / authentic context
Which concrete suggestions of improvement did he/she have?	At first there were no suggestions for improvement, but at the end there was the suggestion of expanding the languages, i.e. that the platform should be available in many different

Teacher/case n° 4	
	<p>languages in order to simplify the exchange and make it more global.</p> <p>Aspects should also be taken up, such as studies that can be added to the teacher training programme, if they exist (extension studies).</p> <p>Expanding a teacher's range of competences beyond teaching, such as dealing with parents, colleagues or the media, or the topic of communication.</p>
<p>Which elements of the platform did he/she find most interesting/useful?</p>	<p>The concrete teaching materials, as well as suggestions for solutions, which can be directly integrated into the lessons, here with the focus on authentic contexts, explorative learning, controversial contexts, in the form of examples, which were developed for different categories.</p> <p>Career opportunities, here the personal videos as well as the content area with real- world context and authentic context</p>
<p>Career:</p>	
<p>In which way did the platform inspire/motivate him/her to advance their career as a teacher?</p>	<p>The platform did not inspire her to pursue her career as a teacher, as she "already likes" to work in schools. However, she finds it very important that the Tech4life platform exists, as it can motivate people who, for example, no longer want to pursue the teaching profession after the ISP, to complete their studies anyway, as they have several career or professional opportunities with the teaching degree.</p>
<p>How he/she finds the career section of the platform (what is good, what is missing)?</p>	<p>She finds the career section of the platform well structured and divided into different job opportunities.</p> <p>They are clear and appealing and the texts are not too long, in a reasonable length.</p> <p>The personal experience videos are appealing and interesting, they offer the possibility to easily acquire information that is also directly based on personal experience.</p> <p>The length of the videos could possibly be shortened to the most interesting.</p> <p>The only thing that was missed were study options that could be used as a prelude to teacher training.</p>
<p>Which suggestions for improvement he/she has regarding the career part?</p>	<p>In general, there were no suggestions for improvement in this respect.</p>

Teacher/case n° 4	
<p>How has his/her view about the teachers' career changed in anyway due to the platform?</p>	<p>For her, the basic career possibilities are partly very obvious, as well as the possibility of becoming a head teacher or lecturer at universities, and the whole thing abroad. Nevertheless, she finds it important that it is shown how many possibilities there are and how many career paths one can take.</p> <p>For her, this has not changed her opinion about the career of a teacher, but merely changed her knowledge, or rather expanded what you can ultimately do with a teaching degree.</p>
<p>Competence</p>	
<p>In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?</p>	<p>As she herself is still studying, the platform could not motivate or inspire her specifically, as she does not currently need "new knowledge or new inspiration, as well as materials" for lesson preparation, etc. Nevertheless, one can generally be further educated or inspired in the area of authentic contexts or with regard to research-based learning, especially with practical examples.</p>
<p>How he/she finds the competence section of the platform (what is good, what is missing)?</p>	<p>She also finds this part well structured and arranged. It is divided into the areas of STEM subjects, i.e. mathematics, computer science, natural sciences and technology. Again, different authentic contexts and examples were used. In addition, from a teacher's perspective, she sees the possibility of using the materials with different solutions directly in the classroom, and suggestions for implementation are also provided.</p> <p>By working with the compendium part of the platform and the listed examples, according to her, the ability to teach in a way that is geared towards long-term learning can ultimately be made possible/achieved. In this way, the acquisition of knowledge, stimulated discussions, etc. achieve their goal of educating students to become responsible citizens.</p>
<p>Which suggestions for improvement he/she has regarding the competence part?</p>	<p>Improve/Miss: The competences of the teacher are not explicitly addressed, i.e. what does the teacher really need to be able to do? Inseams, according to her, is kept very general, the focus of the platform is on the design of lessons and competences related to communication/interaction with parents, colleagues or media are not mentioned/emphasised/explicitly addressed.</p>
<p>Collaboration</p>	

Teacher/case n° 4	
<p>In which way did the platform inspire/motivate him/her to for collaboration with other teachers?</p>	<p>In general, the goal of exchange and communication failed, or what was ultimately wanted was not achieved.</p> <p>The platform did not inspire or motivate them in terms of cooperation with other teachers, because according to Lena Müller, no exchange took place on the platform. In her opinion, this only shows that the exchange culture is not yet anchored among teachers and that they cannot assess to what extent teachers are aware of this platform</p>
<p>How has his/her view about teacher collaboration changed?</p>	<p>In principle, she finds the given possibility of exchange very good, because in her opinion cooperation can lead to an improvement or to good teaching. However, this is based on her own experience from the ISP and not through the platform. It was also possible to observe directly in the teachers' room that no exchange takes place in everyday life.</p>
<p>What did he/she find most useful to support teacher collaboration?</p>	<p>In general, as the exchange was not used, the aim of forming a communication channel for teachers failed. Therefore, she found nothing supportive in general. However, in her opinion, collaboration in general could be supported through such platforms.</p>
<p>How he/she finds the collaboration section of the platform (what is good, what is missing)?</p>	<p>She found the section generally not bad, as well as the stimulating questions that were available from the beginning. What she missed was a bit more "input", so that more people would comment or discuss. Possibly also with controversial posts, with the aim of making the platform more interesting.</p>
<p>Which suggestions for improvement did he/she make regarding the collaboration part?</p>	<p>She has no suggestions for improvement regarding the design, as she also finds the area with the cooperation well structured. According to her, there is nothing that should or could be changed.</p>
<p>Any additional comments that he/she made about the platform:</p>	<p>Improving the diversity of things</p> <p>She sees potential in such platforms in the future, they just need to be more widespread to be better used.</p>

Teacher/case nº 5	
Age	32
Gender	Male
Pseudonym	Uwe Allgeier
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	Teacher at a vocational school, teaching Mathematics and Physics.
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Masters Student
Teaching experience/professional development of the teacher	Started teaching in 2018, has been at the current school since mid-2019
Why he/she decided to become a teacher?	Developed an interest in teaching due to a fascination with subjects and experience in youth work.
Is he/she planning to change their position? If yes, which position and why?	He is interested in professional development but has little interest in administrative positions within schools. They would like to further develop in teaching and find more tasks in this area, rather than moving into administration.
What are the main barriers for teachers' competence development from his/her side?	
What are the main challenges for teachers' collaboration from his/her side?	<p>Uwe Allgeier mentions that resources for collaboration are lacking and that there is a dependency on other teachers. The effort to start collaboration is seen as more challenging compared to preparing lessons individually.</p> <p>The main challenge is the lack of resources and time. Teachers often feel overwhelmed and find it difficult to take the first step towards collaboration.</p>

Teacher/case nº 5	
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>Uwe Allgeier mentions that there are limited career development opportunities specifically for teaching, as most opportunities are administrative. The teacher expresses a desire for career development within teaching itself, rather than in administrative roles. The teacher finds it challenging to identify clear and realistic paths for career development and progression.</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>Uwe Allgeier expresses a need for explicit guidance and opportunities, mentioning the need for someone to outline the first steps and tasks that can lead to career development. The teacher desires more structured and regular collaboration with peers, specifically mentioning the wish for more departmental work where teachers can discuss teaching, not just administrative matters. He also mentions the need for resources and time to collaborate with other teachers effectively.</p>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>He would like more working time for collaboration, specifically mentioning a desire for more departmental work where teachers can discuss teaching rather than administrative matters</p>
<p>PLATFORM teach4life</p>	
<p>Describe the general experience using the 3C4life platform</p>	<p>Uwe described the platform as appearing small and very structured, resembling something from the public sector. He noted that it was well-designed and modern. He noted that it seemed formal and official, lacking a personal touch. He felt that the platform did not provide a sense of informal conversation with a colleague but rather felt like attending an official informational event. He found the platform to be more of a schematic assembly rather than an intuitive guide.</p>
<p>Which concrete suggestions of improvement did he/she have?</p>	<p>Uwe suggested that the platform could benefit from a more personal approach, allowing users to connect with others in a protected space for more honest and informal discussions. He also mentioned the need for clearer guidance on the initial steps towards career advancement. For the competence section, he suggested making content more easily downloadable to facilitate its use in teaching.</p>
<p>Which elements of the platform did he/she find most interesting/useful?</p>	<p>Uwe found the overview of career possibilities and the videos in the career section to be the most interesting and useful aspects of the platform. He appreciated the clarity and organization of the information presented, which helped him</p>

Teacher/case nº 5	
	understand the different roles and career paths available. However, he felt that the platform was more useful for providing examples and ideas rather than serving as a resource for career advancement.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	The platform played a confirmatory role for Uwe Allgeier by showcasing the diversity of career paths available to educators. However, it fell short of providing substantial inspiration or delineating clear, actionable pathways for career advancement. Allgeier expressed a desire for more realistic and relatable content that could serve as a catalyst for career development.
How he/she finds the career section of the platform (what is good, what is missing)?	Allgeier found value in the clear and organized presentation of various career possibilities available on the platform. This feature served as a comprehensive guide, aiding educators in exploring and understanding different career paths within the teaching profession.
Which suggestions for improvement he/she has regarding the career part?	Uwe Allgeier articulated a need for a more personalized approach in the career section of the platform. He proposed the incorporation of contact offers or a secure, confidential space where educators could engage in candid, non-official discussions about career trajectories and experiences. This suggestion underscores a desire for authentic, relatable insights over formal, polished presentations.
How has his/her view about the teachers' career changed in anyway due to the platform?	No
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	Uwe found the competence section to be useful for gaining ideas and insights, particularly the concept of "controversial contexts" in Physics. He appreciated the accessibility and practicality of the content but noted that it served more as a source of examples rather than a teaching resource.
How he/she finds the competence section of the	The concept of "controversial contexts" and the specific examples provided were identified by Allgeier as particularly interesting and useful. He appreciated this feature as it

Teacher/case n° 5	
platform (what is good, what is missing)?	offered fresh perspectives and tangible examples that could be incorporated into teaching practices.
Which suggestions for improvement he/she has regarding the competence part?	Allgeier advocated for enhancing the user-friendliness of the platform by making resources easily downloadable with minimal design elements. This would facilitate the immediate application of these resources in a teaching context, thereby increasing the platform's utility for educators seeking to integrate new materials into their lessons.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	He did not use the collaboration section at all.
How has his/her view about teacher collaboration changed?	NA
What did he/she find most useful to support teacher collaboration?	NA
How he/she finds the collaboration section of the platform (what is good, what is missing)?	NA
Which suggestions for improvement did he/she make regarding the collaboration part?	NA
Any additional comments that he/she made about the platform:	NA

Reporting on key issues: evidence collected and responses to research questions

Germany

Partners are encouraged to **draw on evidence to support their case study report** based on the selected cases. Evidence may come from different sources (e.g., teachers' written responses to open questions about the 3C4life platform; quotations from the 5 teachers' interview or Matomo analytics related to the use of the platform in any partner country). Quotations showing teachers' responses are highly appreciated to illustrate any of the key points.

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>Which elements of the platform did teachers find the most interesting or useful to know about different career pathways related to the teacher profession?</p>	<p>Teacher predominantly recommended the career and competence part and especially the combination of both in on platform.</p> <p>Teachers appreciated the clear categorization and listing of different roles and career possibilities available within the teaching profession. This feature helped in clarifying distinctions between various roles and provided a comprehensive view of potential career paths, thereby aiding teachers in their career exploration and decision-making processes.</p> <p>Furthermore, the platform was recognized for offering structured information and resources that</p>	<p>The platform is <i>“something about education outside of the normal classroom. And a little bit also outside our normal run-of-the-mill continuing education”</i></p> <p><i>“I think controversial contexts was what I could have called least present now, and I find it an interesting suggestion. The content behind it was accessible to the field of physics”</i></p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>were valuable for teachers seeking to understand different career pathways. This structured approach was instrumental in organizing and presenting the information in an accessible and coherent manner, facilitating ease of navigation and comprehension. Another notable feature was the inclusion of videos, which were highlighted as a positive addition to the platform. These enhanced the learning experience or were offering valuable insights into different career options and contributing to a more engaging and informative user experience. Additionally, the concept of "controversial contexts" was identified as an interesting and innovative element of the platform. This concept introduced a new perspective and served as a source of inspiration, encouraging critical thinking and reflection among teachers.</p>	
<p>In which way did the platform help teachers to explore different career pathways related to the teacher profession (mentoring, school management, educational administration...)?</p>	<p>The platform provided detailed descriptions of each career pathway, along with the necessary qualifications and potential salary ranges.</p> <p>One of the key features was the provision of structured overviews of different career possibilities, showcasing diverse career paths, exposing teachers to a variety of options in educational authorities, government offices, schools, universities, and abroad.</p>	<p>"I found the information on career pathways very enlightening. It opened up new possibilities for me."</p> <p>The platform "<i>[...] should have been there ten years earlier</i>".</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>This exposure broadened teachers' perspectives and enlightened them on potential career trajectories they might not have previously considered, thereby expanding their horizons.</p> <p>In addition to structured overviews, teachers found the videos very insightful as they gave a realistic view of what each career entailed.</p>	<p><i>"Well, I have to say, I found it interesting to see at a glance what / what options there are."</i></p>
<p>Are there any aspects of the 3c4life platform that can be improved in terms of encouraging teachers to explore different career pathways related to the teacher profession?</p>	<p>A prominent theme was the desire for more personalization and realistic guidance. Teachers expressed a need for more tailored advice and real-world insights on how career pathways realistically unfold.</p> <p>A few mentioned that they would like to see more pathways related to non-traditional educational roles.</p> <p>Another suggestion was the creation of opportunities for direct communication for career advice. Teachers valued the possibility of interacting with professionals in various roles, and the introduction of contact offers.</p> <p>Motivation emerged as another area for enhancement. Some teachers felt that the platform could incorporate more elements to inspire users by showcasing the positivity of different roles and</p>	<p>"Honestly, hardly, it has only shown me that the high goal I see in principle exists, but it has also not convinced me whether it is certainly positive, and it has not managed to show the way with them."</p> <p>"... a career counselling, uh, like a kind of consultation hour, could also be, uh, done."</p> <p>"A more intuitive interface and personalized recommendations would enhance the exploration experience."</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>providing clearer pathways to achieve them. Additionally, there was a call for expanded information on additional studies and qualifications.</p> <p>Some teachers also mentioned that the career part of the platform should be used for career advice for high school students to showcase different career paths for prospective teacher students and improving the attractiveness of the teacher profession.</p>	
<p>In which way did the platform motivate teachers?</p>	<p>Teachers mentioned that a main feature of the platform was its ability to expose teachers to a variety of career paths within the teaching profession that they might not have previously considered. This exposure served as a catalyst, broadening their perspectives and opening up new possibilities.</p> <p>Conceptual insights were also a key feature of the platform, with the introduction of concepts like "controversial contexts" and the provision of practical examples and solutions. These elements inspired teachers and encouraged them to think about their profession in new ways. The platform acted as a source of inspiration, motivating teachers to explore different ways within teaching and consider innovative approaches to their roles.</p>	

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>For some teachers, the platform served as a confirmation of the existence of higher goals within the teaching profession. This confirmation was both affirming and motivating, reinforcing their aspirations and commitment to professional growth. However, it is noteworthy that there were also mentions of the platform not significantly altering the motivation levels of some teachers, as it confirmed pre-existing notions without providing a clear pathway to achieving those goals.</p>	
<p>How views about the teaching career have changed as a consequence of the platform use?</p>	<p>The teach4life platform has had a moderate impact on teachers' perspectives regarding their profession. The platform has broadened the perspectives of teachers by showcasing a diverse array of career paths within the teaching profession, including roles in educational authorities, government offices, schools, universities, and abroad. This exposure to varied opportunities has enlightened teachers about possibilities they hadn't previously considered, fostering a more comprehensive view of their profession. Interactive content and videos on the platform have provided in-depth insights into different career options.</p> <p>Furthermore, the exposure to diverse career paths has helped teachers gain a comprehensive</p>	

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	understanding of the skills required for each role, contributing to their professional development.	
Which elements/resources of the platform are specially interesting to develop particular skills and competences relevant for the teaching profession nowadays?	<p>Teacher noted that the competency section, proved to be invaluable. The inclusion of practical examples and solutions on the platform was highly valued by teachers. These real-world examples and suggestions for implementation proved to be beneficial, thereby aiding teachers in the development of relevant skills and competences.</p> <p>The concept of "controversial contexts" stood out as a unique and intriguing feature. This concept opened up new perspectives and served as a source of inspiration, encouraging teachers to think critically and approach teaching topics in innovative ways.</p>	<p>"The resources and materials available were quite comprehensive and helpful."</p> <p>"The resources on the platform are ... helpful in developing contemporary teaching skills."</p> <p>"In that respect, I also find it very practical that you simply give practical examples. I was looking at the, um, authentic context of mathematics with the Simpson paradox, so that you really do give examples."</p>
Are there any aspects of the 3c4life platform that can be improved in terms of supporting the development of useful teaching competences? Do teachers miss any relevant aspect in this respect?	Several suggestions were made by teachers for enhancing the 3C4life platform to better support the development of useful teaching competences. One of the key recommendations was to improve the user-friendliness of the content, to enable easier	<p>"So, I would also have put links in the area under in general, where one get more literature"</p> <p>"Of course, you could always do more... provide more</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>downloading of resources and to be able to filter within age and/or school type.</p> <p>While the platform was commended for providing practical examples and solutions, there was a suggestion to expand on this feature. Including more real-world examples and more detailed implementation suggestions across different competences could further enhance the practicality and applicability of the platform's resources.</p> <p>Also there was the recommendation to produce personalized videos for each example in the competence part.</p>	<p>materials, but I think that quality is more important than quantity. “</p>
<p>How did the platform support teacher collaboration? Why? Which elements/features of the platform support the building and development of communities of practice? Which elements were best appreciated by teachers in this respect?</p>	<p>The collaboration feature of the platform was predominantly perceived as ineffective. The asynchronous form of communication was found to be ill-suited to the fast-paced nature of teachers' everyday lives, resulting in delays that hindered real-time interaction and support. Additionally, the requirement to type in questions and answers was deemed time-consuming, further detracting from the user experience.</p> <p>Moreover, the necessity to log in to view previously discussed content posed a barrier to attracting new users. Potential users were unable to preview the</p>	<p>"I haven't really dealt with it, clicked in and saw. Okay, there is some kind of forum. I could write in. I don't know who reads there, who writes there."</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>platform's content prior to registration, which could deter them from joining due to uncertainty about the value and relevance of the discussions held within the platform. This lack of transparency and accessibility could potentially discourage new users from exploring the collaborative features of the platform, limiting its growth and diversity of perspectives.</p>	
<p>How teachers' view about teacher collaboration have changed as a consequence of the use of the platform?</p>	<p>No, see above.</p>	
<p>Do teachers miss anything in the platform to support teachers' collaboration?</p> <p>Do teachers have any concrete suggestion to improve the platform design in terms of promoting teacher collaboration?</p>	<p>Teachers suggested various possible improvements. Teachers suggested the addition of direct communication and networking features such as chat rooms, or discussion boards. These tools would facilitate real-time interaction, discussions, and exchanges among teachers, fostering a sense of community.</p> <p>Teachers offered a range of suggestions for enhancing the platform. A common recommendation was the incorporation of direct communication and networking features, such as chat rooms or discussion boards. These tools could enable real-time interaction and discussions among</p>	<p>"Or exchange, ..., a trainee teacher group or / or the area or mentor group, where, ... then meets or there then can network so."</p> <p>"...create a profile or form groups where someone then says, uh, uh, uh, vocational-uh-uh-school, uh, that would then already be the main-uh-cluster vocational school, uh, then general education school and then, uh, upper school,</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>teachers, fostering a sense of community and collaborative learning.</p> <p>Suggestions would be that profiles of teachers could be created and groups of certain school types where teachers can network should be presented. There the teachers have the possibility to interact with teachers at the same school type. Teachers suggested the inclusion of 'collaboration badges' to reward active participants in the community. There were also suggestions to introduce mentorship programs within the platform, pairing less experienced teachers with veterans in the field.</p> <p>In addition to digital forums, some teachers proposed the organization of digital round tables as an alternative. This format would facilitate direct exchanges and discussions, allowing teachers to share insights, experiences, and best practices in a more interactive and engaging manner. The implementation of such features could significantly enrich the collaborative aspect of the platform, making it a more valuable resource for professional development and community building.</p>	<p>middle school, lower school, so that there are then corresponding, uh, groupings and then that can, uh, take place in the respective be/area, uh, then, uh, where one can network."</p>
<p>Is there any other relevant aspect you would like to discuss in relation to the 3C4life platform?</p>	<p>The platform received commendation for its innovative content, with the exception of the collaboration component. Teachers suggested</p>	

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	exploring and evaluating the platform's applicability to various potential target groups, such as high school students, teacher students, and policy makers, especially with the goal of reducing the teacher shortage in certain areas of Europe.	



Partners' case study report

LITHUANIA



Description of how the 3C4LIFE platform has been adapted and promoted in Lithuania

According to the project description, any partner should report about 5 cases to provide an in-sight into how the platform has been used by different teachers in any country. We assume that the implementation of the platform (how it was promoted and adapted) is similar for all the cases reported by any partner. If you consider that your responses to the table below will vary depending on the individual case being reported you should provide a different table for any case.

Please, respond to the following questions to illustrate how the platform has been promoted and adapted in your country:

Questions	Responses of partners from: <i>LITHUANIA</i>
<p>1. When and how was the teach4life platform promoted in your country and how successful was this from your point of view?</p>	<p>We emailed information to schools about the new platform for pre-service and in-service teachers interested in STEM. We also published information on the university's website and social networks. We were more active in disseminating information 2 months before and after the launch of the platform.</p>
<p>2. What kind of adaptations have you made to the 3C4Life platform for its use in your national context? Why?</p>	<p>We were just translating the material.</p>
<p>3. Have you added new/different materials/examples? If your answer is yes, Which ones and in which way are they different from the international version? Describe them.</p>	<p>-.</p>
<p>4. Have you offered the 3C4Life platform in the context of an official teacher professional development course? If your response is yes, explain the characteristics of the course (number of maximum participants, number of hours, existence or not of specific support and following up by teacher educators, etc...).</p>	<p>-</p>
<p>5. How have you encouraged and monitored the use of the platform by participants?</p>	<p>We organise short STEM-related workshops for teachers. During these workshops, teachers study</p>

Questions	Responses of partners from: <i>LITHUANIA</i>
	the material on the platform or have to complete tasks set by the lecturer.
<p>6. Indicate key dates when you performed actions to promote the use of the platform (social media posts, platform workshops, strategic meetings...)</p>	<p>20 September 2022 - Invitation to participate in the field trial and information about the new platform.</p> <p>STEAM education: a workshop on the application of computational and project-based thinking on 7 February 2023.</p> <p>4 April 2023 - Workshop "Lessons with a microcontroller: from notes to speedometer" at the Panevėžys Regional STEAM Centre</p> <p>19 May 2023 Meeting with NEEB</p> <p>29 May - 1 June 2023 visit to Kintai and discussions with teachers.</p> <p>31 May online workshop on collaborative learning with Jam Board (Should self-driving cars have a moral conscience?)</p> <p>2 June online workshop on STEAM scenarios development</p>
<p>7. Have you suggested particular paths when exploring and using the 3C4Life platform? If your response is yes, explain which ones and why.</p>	<p>We explain the structure of the platform and what it contains, show and discuss the scenarios in competence area</p>
<p>8. What measures were taken to initiate collaboration in the forum? How successful were they and why?</p>	<p>Participants were given tasks and asked to post their answers on the platform. The results were less than we expected. We believe that this could be due to teachers' lack of confidence in STEM, lack of information, being more used to working individually or discussing things</p>

Questions	Responses of partners from: <i>LITHUANIA</i>
	live, and also registration failures.
9. How have you ensured the number of evaluation questionnaires before using the platform, 3 months after and 6 months after starting to use the 3C4Life platform?	We sent reminders to all the teachers who had decided to take part in the field trial. And tried to ensure their participation and involvement in this way.
10. How have you selected participants for the 3C4Life case studies?	We sent an invitation to participate in interviewing about the experience of using the platform. The teachers who responded to the invitation took part in the study.

Description of individual cases in Lithuania

Include all the relevant information to characterize the teachers participating in your national case studies. **Fill one form for each of the 5 teachers** participating in your national case studies. Any partner should provide **5 forms** corresponding to any of the cases (any form will be considered a case).

You can use your own knowledge about the teacher and all the information you collected about him/her before and during the interview (see the templates provided for these purposes).

Case number: 5

Country: Lithuania

Teacher/case n1	
Age	53
Gender	Female
Pseudonym	LV1204
Background information: <ul style="list-style-type: none"> ● Motivations and goals as a teacher ● Teaching referents ● School description and previous 	At the time, there was a limited choice of jobs in the province. She studied education later, when she was already working. As a teacher, she tries to enable students to develop, acquire and apply knowledge and to develop the patience to see projects through to completion. Her main aim is to help students achieve general education standards by planning and delivering high quality IT lessons. She has been a teacher

Teacher/case n1	
experience (only for in-service)	for 30 years, 25 at her current school. She previously worked in a Catholic school. She has no other employment. She teaches pupils in years 5-8. Currently she works in a gymnasium with the following educational programmes: pre-primary and primary education, individualised primary education programme, first part of the basic education programme, first part of the individualised basic education programme and non-formal children's education programmes. The school has 36 teachers and 420 pupils.
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher of Information Technology, Pro-Gymnasium
Teaching experience/professional development of the teacher	30 years
Why did he/she decide to become a teacher?	Low level of career choice
Is he/she planning to change their position? If yes, which position and why?	No
What are the main barriers for teachers' competence development from his/her side?	As a teacher of the subject, she notices a lack of orientation. The teacher cannot teach all the material because some students need more time and others less, some need more practice and others do the work faster. It is very difficult to come to school as a recent graduate because there is nothing (no textbooks, structured teaching materials, exercises, etc.) (this is specific to computer science). There must be clear structures in teaching. The student works and the teacher helps, guides and directs. Teachers (IT specialists) have a very heavy workload.
What are the main challenges for teachers' collaboration from his/her side?	There has to be moral support, joy. It's a difficult situation when you come to school and you don't see anything positive. Teachers of different subjects have different perceptions and skills, and most of them lack technological skills and algorithmic thinking. The problem is with the older teachers, who have their own images, their own attitudes, and when something goes wrong, they get lost, they don't understand.
What are the main challenges for teachers' career development from his/her side?	Teaching has changed a lot over the years and it is now very difficult to find something to motivate students. What you see as inspiration may look very different to a student who doesn't have any plans for the future. There is a lack of appropriate teaching materials. There are plenty of textbooks, but you have to find the right materials for you and your students.

Teacher/case n1	
	<p>Feedback is very important to her in the classroom. The teacher works with children of different abilities in the classroom. That's why her lesson has to have several levels: one that the special needs pupils can cope with and one that they can progress with. The problem is that IT lessons do not have structured teaching materials like English. The teacher uses material that has been collected over 20 years. The aim of the teacher's lesson is for the pupils to do something, to feel something, to touch something.</p> <p>It is important to understand what is being explained, what is wanted, what is being aimed at.</p> <p>The aim of a teacher-led lesson is for students to complete the task by the end of the lesson. They achieve the task by working towards the goal and correcting mistakes.</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>Lessons need to be prepared at different levels. This would make it easier to teach students of different abilities.</p> <p>Simplification - a variety of seminars.</p>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>Administrative support is essential. Understanding.</p> <p>If you are learning from a textbook, you do not have to make any effort. But if you think about the child you are teaching, you have to adapt, you have to adapt somehow. You don't know what it's going to be like, every lesson is a risk.</p>
<p>PLATFORM teach4life</p>	
<p>Describe the general experience using the 3C4life platform</p>	<p>She looked at everything and tried to find out what would fit in, what she could adapt. She liked the topic of password generation best, as it is the most challenging for students.</p>
<p>Which concrete suggestions of improvement did he/she have?</p>	<p>"In fact, I don't really understand the place of STEAM in our education yet."</p>
<p>Which elements of the platform did he/she find most interesting/useful?</p>	<p>She does not yet know exactly what STEAM covers.</p> <p>It would be great to be able to mark what you liked.</p> <p>" You could mark red, yellow, or green. And then you go back and get it."</p>
<p>Career:</p>	
<p>In which way did the platform inspire/motivate him/her to advance their career as a teacher?</p>	<p>She didn't pay much attention, because "when you've been working for many years, you're used to the structure of the lesson, the order and everything else".</p> <p>This section is good. But, in Lithuania, everyone has to find their own way into these things, to choose their own methods.</p>
<p>How he/she finds the career section of the platform (what is good, what is missing)?</p>	<p>"I know that in English schools there is this management part, where there are no teachers, but there is someone who is in charge - managers, departments and so on. Here we don't have that and the whole thing is the teachers responsibility. It is a separate job and, at least in our administration, it is practically not evaluated... On the other hand, when you are a teacher, you are still partly a manager. For a certain age group</p>

Teacher/case n1	
	you still need those leadership skills, because you have to manage the class anyway.”
Which suggestions for improvement he/she has regarding the career part?	No, everything is clear. The teacher noted that it is theory but lacks practice, and in particular it is very different from her school practice.
How has his/her view about the teachers’ career changed in any way due to the platform?	The teacher was looking at what she could put into practice.
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	She was very happy to discover it. It would be good if there was some kind of check, a note of what you liked, what you could use. Practical topics, hands-on subjects that are easy to learn regardless of language. Ideas on how to use them in the classroom. Even if there was a way to take notes and make choices. And maybe what is new would be marked, then you just check if you use it.
How does he/she find the competence section of the platform (what is good, what is missing)?	If you are a beginner teacher, this platform would be very difficult. A teacher who has never worked before may have many illusions and may not live up to expectations. When he/she comes to practice with something from the platform, he/she may be very disappointed. Perhaps a timetable should be included for this beginner, i.e. attaching guidelines to the activities , what takes how long in order to be orientated.
Which suggestions for improvement he/she has regarding the competence part?	Guidelines, opportunity to mark that were useful, interesting, etc..
Collaboration	
In which way did the platform inspire/motivate him/her to collaborate with other teachers?	Not very active. If she was interested in something, the teacher would get involved too.
How has his/her view about teacher collaboration changed?	No change. There are many spaces where a teacher can have a chance to communicate. And this was especially important during the Covid-19 pandemic.
What did he/she find most useful to support teacher collaboration?	There is a lot of competition, as there is in all jobs, including teaching. Everyone wants to avoid heavy criticism, so use what you have and don't share it. Forums just for socialising are fine, but no one will share their material or anything like that. It's very time-consuming, and more important is the preparation for the lessons, the material.
How he/she finds the collaboration section of the	Time is required, which we don't have, is very important here.

Teacher/case n1	
platform (what is good, what is missing)?	
Which suggestions for improvement did he/she make regarding the collaboration part?	No
Any additional comments that he/she made about the platform:	There should be lesson packs for teachers at different levels.

Teacher/case n2	
Age	60
Gender	Female
Pseudonym	DI2705
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>She graduated in applied mathematics, and at school she liked maths and later programming. She first started teaching children in coding clubs.</p> <p>The guiding principles of the teacher's work are: mutual respect and collaboration.</p> <p>As a teacher, her goal is for her students to combine their new knowledge with what they have already learned and to apply what they have learned.</p> <p>She has been a teacher since 1991. She has been at her current school for 2 years. She works in a gymnasium for students in grades 9-12, with a strong emphasis on tradition and values. She came to this school because it offers a robotics module for students in science classes. That is what interested her. The gymnasium has over 70 teachers and over 800 students. Previously, she worked in other schools, teaching students in grades 5-12 and teaching robotics classes.</p> <p>She has also done methodological work in the past, such as managing the electronic diary and the quality management system, and organising exams.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher of computer science and robotics, Gymnasium
Teaching experience/professional development of the teacher	She has been a teacher since 1991.
Why he/she decided to become a teacher?	-
Is he/she planning to change their position? If yes, which position and why?	She has now decided to work with students who are interested in computer science and coding, robotics and preparing them for exams.

Teacher/case n2	
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>It's not enough just to come and teach a very nice lesson.</p> <p>There are plans, there is documentation. This "fitting" into a certain framework probably prevents the teacher from continuing his or her teaching career afterwards, because it happens that when they try, they run away from those schools.</p> <p>"In different subjects, some content changes as the environment changes. It's comfortable to teach the same thing for 20 years, but you feel that it's changing, not because the children are changing, but because the environment is changing and the new technologies allow you to teach those children differently, and that's when you need to have that flexibility... that flexibility, that curiosity. It really does not depend on age. And if you change, then you have to revise, redesign again, lesson plans or whatever."</p> <p>All the distance learning has brought the teacher closer to all these new tools, new technologies. And then they can choose for themselves what is useful. They have really gone through a lot of things, they have tried a lot of ideas, because it was only distance learning and they were forced to integrate it into their subject somehow. They tried this, that, they consulted each other. At that time they got clearer and now there are a lot of different courses, trainings, which allow him/her to find out where he/she could be stronger, what he/she needs. In fact, it is the teachers who have improved anyway, they should now prefer the tools because they have been forced to try them out.</p>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>The new programmes are moving towards competence-based education and show very strong interdisciplinary integration. If a teacher wants to teach a subject, he or she immediately sees that it is very much related to another subject. Then they have to consult, look at what is there, look at the plans, talk to the teacher, of course, preferably to talk and discuss some tasks. Teachers are also not very willing to share and exchange materials in a collaborative way. There are different associations, different communities where teachers share what they find, they see these good practices again, they find materials.</p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>Educators need to work together and help each other to keep things interesting for students.</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>If there is a textbook, you try not to explain too much. But it's really the teacher who wants to get the child interested. You know that new technologies are available and then it is a challenge for the teacher to find this newer material.</p>

Teacher/case n2	
	There is a great need for live communication. Yes, there have been distance learning sessions, but they have not been as good at sharing ideas live.
What would he/she need to improve their collaboration with other teachers/colleagues?	Materials, a shared environment for teachers. Various competitions with pupils are very useful. Everyone prepares, students see, share with their friends, interact and then colleagues get involved. "One of the things I see as a possibility is international projects, an environment for teachers to do such school projects. And it's always interesting to me when students get together to do some common tasks, they can communicate on a platform when they're connected. And then the teacher can see that the students in other countries are learning and getting value."
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	For those who are thinking about some kind of further qualification, perhaps a further career in school, this could be a relevant career area for them. What I found more interesting were the competence parts, i.e. the different sections - engineering related, science related, other topics. Their practical application.
Which concrete suggestions of improvement did he/she have?	If, for example, after trying out some of the posts found in the collaborative area, in the forums, perhaps sharing some useful examples there, it can be a reflection after trying out those examples. For example, there should be an introductory part: how to involve this student, how to prepare him/her for the project, how to construct and present it well, what else could be involved, what are the interrelated themes.
Which elements of the platform did he/she find most interesting/useful?	She liked the practical examples.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	Those teachers who come to the school should be interested in the different career paths for teachers. It is interesting to see the situation in each country. "When you look for new material, when you look for those projects that offer different material, in this case the competence profile, the career opportunities, then you come across other colleagues and you get this collaboration. I had opened a collaboration forum, which would be quite interesting for me, because I have a degree in advanced German, so I would be interested to see what the Germans were discussing there, maybe to improve the language possibilities, I didn't really have a good knowledge of German. So maybe I could find a teacher from another country to work with. How about in another country?"

Teacher/case n2	
How does he/she find the career section of the platform (what is good, what is missing)?	<p>Maybe it was more interesting to look at the projects themselves, to see what education projects are, what project implementers are, what they could do here.</p> <p>“I wouldn't say I missed anything, it's quite well structured. Whether it's schools, whether it's higher education institutions, whether it's just educational institutions. I liked everything here. The projects are so different that you can compare them from one place to another. If you don't just focus on teaching, maybe you liked the project activities, you could look at the educational projects in schools that could be carried out, both ERASMUS and other projects in schools.”</p>
Which suggestions for improvement he/she has regarding the career part?	<p>Videos where specific people speak are the most engaging, but you don't always have time to watch the whole video.</p> <p>I'm more from the point of view of someone who has worked less and is planning a career, concentrated information in one place if it's consistent. You find one thing in one place, another in another, and here it's already reviewed, it's organised, and you can just look at it, both in terms of trying to develop competences and in terms of career. And let's say, what would I need, what would be the requirements, what would be the responsibilities, what would they allow me to do, because maybe I imagine in one way, when I come in, like as a teacher, somebody really wants to be a teacher, but when they come in as a teacher, they see the whole environment somehow differently..</p>
How has his/her view about the teachers' career changed in any way due to the platform?	<p>I think my view has never changed. I just think that there are these myths all over the TV, on the radio, there are these myths about the degradation of the teaching profession, which give it a negative aspect. Then it seems that children start to have a different view - what am I doing here in this school. I think you work where you work. If you don't like it here, you can look for other careers, move to other activities, other categories, other positions, even if it's in the same institution or in another institution.</p>
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	<p>“It was very interesting for me, because when I opened it, I saw that there are definitely things that overlap. Because it's all about 3D printing, building robots, using microcontrollers. I saw that these were purely things and that I should discover in them. Obviously, I haven't looked at everything in all areas yet, but I have certainly looked at, say, what could be tried. Here's one other one, a bit of the technology stuff and then it looks like you could suggest it to another teacher. Obviously, the first thing I had my eye on was the engineering part. Because you think maybe you could show these older classes, not necessarily that it's just the little ones who are learning with those microcontrollers. But I do know that the older ones</p>

Teacher/case n2	
	haven't tried it sometimes. So, you try to relate it to the content and to offer some other tools, not only a computer but also another device to build, to participate in."
How does he/she find the competence section of the platform (what is good, what is missing)?	Structurization: introduction, description, examples.
Which suggestions for improvement he/she has regarding the competence part?	The examples and variety are key, for example, that they are differentiated between the maths side of the subject and the other side of the subject. One possibility is to integrate and discuss future lessons. Because a physicist would see it one way, a computer scientist would see it another way, a mathematician would see it another way, and then that kind of science and mathematics, IT fields, or tasks, or the learning process, might again bring some new ideas.
Collaboration	
In which way did the platform inspire/motivate him/her to collaborate with other teachers?	What is interesting is what is written in international forums. How other teachers work with certain age groups, what others do, what they teach, how they teach... This kind of sharing of experience is one of the most useful aspects. It's perhaps complicated because you have to log in to contribute to the discussions or to ask questions and I don't always manage to do that, and then I fail. I think that if the platform didn't have the collaboration, the forums, then it wouldn't be very collaborative.
How has his/her view about teacher collaboration changed?	
What did he/she find most useful to support teacher collaboration?	The opportunity to go to those discussions or just to ask questions, to read, that teaching experience, where we can look, get to know each other, share, describe how we teach, for professional development, what are the possibilities, where and how to find some tools.
How does he/she find the collaboration section of the platform (what is good, what is missing)?	All the engaging events are most useful when thinking about teachers from different institutions. The events that take place for professional development, both in terms of some associations, how they cooperate, how they present materials, how they prepare. What unites them is the preparation of the content, the different challenges. Forced to collaborate, to look and ask colleagues what others know, then you learn more.
Which suggestions for improvement did he/she	Professional development or training experience is quite nicely distinguished here. It's clear that you're moving in the direction of your desired competencies/skills or career.

Teacher/case n2	
make regarding the collaboration part?	
Any additional comments that he/she made about the platform:	-

Teacher/case n3	
Age	38
Gender	Male
Pseudonym	DS0404
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>There's a teacher aunt in the family, she was a strong ideal. This influenced his choice of teaching.</p> <p>The guiding principles of a teacher's work are: honesty, choice, responsibility for one's own attitudes and actions, respect for initiative and creativity.</p> <p>His main goals as a teacher are: to give students the opportunity to be creative, to observe details and aesthetics in the environment and in life; and to be an example of initiative and social action.</p> <p>He has been a teacher at his current school for 16 years. He describes his school as modern, looking for meaningful educational activities and creating relevant learning content. The school has 40 teachers and 414 pupils.</p> <p>He has also worked in other schools. As well as being a teacher, he is an event decorator and print and layout designer. He is also a teacher advisor for the "I Choose to Teach" programme.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher of graphic design and technology, Gymnasium
Teaching experience/professional development of the teacher	He has been a teacher at his current school for 16 years.
Why did he/she decide to become a teacher?	He chose to study at the University of Education because he was interested in a specialised field of study rather than in teaching, which was something he had never considered before. However, in his final year, he received an invitation to take part in the "I choose to teach!" programme appeared. He filled in the application form, went through all the selection stages and was selected as a first-generation participant. This programme encouraged him to come to school with new ideas.
Is he/she planning to change their position? If yes, which position and why?	In the current gymnasium, there is a mentor for a first-year teacher and a consultant for a beginning teacher from another school. He has been offered a management /

Teacher/case n3	
	administration job on several occasions, but he felt he would get more out of being a teacher than an administrator, so he is not considering it at the moment, although it is possible.
What are the main barriers for teachers' competence development from his/her side?	<p>I think teachers are sometimes pushed to plan a lot, but the challenge is that plans often fall apart because you don't know what might happen that day. The biggest challenge is that it's not a planned activity, teachers are just living in a situation where at any moment something can change. That's why I think the challenge is that the daily routine is unpredictable. Teachers work with people, with children, where emotions can have a big impact, where good weather, bad weather, and other social actions can have an impact. Anything can have an impact on your unpredictable daily life.</p> <p>At the moment, when there are very big changes in education, the big barriers are the lack of time, because teachers are obliged to be very interested in the updated content, in the innovations that are taking place in education, in the different activities to be involved in, in the big responsibilities in school. Teachers also have community activities. I think that lack of time is a big obstacle for a teacher to develop his/her competences.</p>
What are the main challenges for teachers' collaboration from his/her side?	<p>This collaboration can take place during lessons, during breaks, or when pupils are on holiday, when there is a short period of time when you can have a good quality live collaboration between teachers.</p> <p>Everyone knows the activities of their subject. There is no practice of sharing or disseminating what is going on, what has been done, very fragmented moments when something has succeeded, something has happened. But there is no such regular practice of sharing.</p>
What are the main challenges for teachers' career development from his/her side?	<p>It's useful to know what activities teachers are involved in and what is on offer to the children. Now, I have no idea when we would be able to find that out if we look at the whole curriculum, with all the different lessons, different classes. There is a risk of a lot of rejection and a lot of irrelevant information for teachers.</p> <p>The biggest challenge is time management.</p>
What would he/she need to keep on growing professionally?	<p>In any case, these discussions between teachers, let us say subject teachers, or meetings with teachers in the field, are very useful. Such consultations or meetings with teachers to share experiences, but not those where the experience is described, wrapped up in some kind of methodology, where you have to understand, but simply what works and what doesn't work. This simple sharing of what tasks are useful, what tasks are meaningful, is a good experience, not trying to wrap it up in some kind of forms, models and trying to present the experience on a theoretical level. I think that kind of</p>

Teacher/case n3	
	experience is not successful, and those practical activities are useful where I can suggest to other teachers a specific task that I think is meaningful.
What would he/she need to improve their collaboration with other teachers/colleagues?	A structured and practical, adaptable meeting.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	I was surprised when I looked at it that in one place there is what we used to write down for pedagogical purposes in some slides or some mini-work, which is structured information, not in a document, but on a website, where it is clearly presented, for example, on careers. I think it's very useful for a beginning teacher to show this section, where it's clear what's being done, with illustrative examples. Very useful.
Which concrete suggestions of improvement did he/she have?	Forums are not very interesting or relevant. There could be online consultations, chat rooms. Or it could be a robot, if it can be generated. Artificial intelligence will generate some answers. These forums are already old-fashioned and nobody looks at them because they are an old form. Avoid old posts and see what the content is.
Which elements of the platform did he/she find most interesting/useful?	The level of qualification (career) is very good. You can see very clearly written text, which teacher, which step, video where you can see what the teachers are saying..
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	I just don't care right now what is on offer there.
How does he/she find the career section of the platform (what is good, what is missing)?	It's complicated when a teacher starts to prepare for professional development, and there are all these different indicators that are sometimes very difficult to understand. These could be, say, examples of those indicators, but it is very difficult to do, because there are also the specifics of the subject, because there are a lot of criteria and you have to produce evidence for them. But sometimes the criteria themselves can be interpreted differently by everyone, so if the platform could help to clarify the criteria, to clarify what is meant, then perhaps that would be a big help.
Which suggestions for improvement he/she has regarding the career part?	There could be a clarification of the criterion that this criterion applies to: activities you have done on excursions, in laboratories.
How has his/her view about the teachers' career changed in any way due to the platform?	-

Teacher/case n3	
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	The challenge with the updated content, that there will be other things in addition to the engineering subjects, so it's some comfort that I would find those things here.
How does he/she find the competence section of the platform (what is good, what is missing)?	The most interesting thing is the extraction of inquiry-based learning, authentic context. It's interesting to look at the examples and see what it is. Technology teaching is understood differently in Lithuania and other countries. No such difference is visible on this platform. We are very free to choose our content in the classroom, and we all understand it differently.
Which suggestions for improvement he/she has regarding the competence part?	Relevant national context.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	It seems to me that it's very dangerous if you close yourself off in your own bubble, in your own area, and you don't take an interest, or you don't consult, or you don't exchange ideas with other teachers, then you can go to the side where you don't really understand what's important, you don't really feel the pulse, because education is changing a lot, and it's necessary sometimes to share information, to get a better idea of what Lithuanian education is achieving. Not sharing, not communicating, isolates you, makes you so insulated. Communication is about refreshing yourself, bringing new tasks, new goals into your teaching, etc.
How has his/her view about teacher collaboration changed?	There is a danger: what was used in the past is not relevant to students now.
What did he/she find most useful to support teacher collaboration?	Old record dates discourage further connections. It would be quite interesting to read teachers' experiences or find some exercises in some other form. It is a good idea, but as I understand it, it is not working now.
How does he/she find the collaboration section of the platform (what is good, what is missing)?	I find forums so uninteresting that I don't even bother to go and look.
Which suggestions for improvement did he/she make regarding the collaboration part?	Live time support and innovation, modernity are needed. Live time rooms, chats.
Any additional comments that he/she made about the platform:	An idea could be: a project with students could appear on this platform.

Teacher/case n4	
Age	45
Gender	Female
Pseudonym	LJ2707
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Teaching is motivated by a love for students. Her brother is also a teacher in the family.</p> <p>The guiding principles of a teacher's work are: not being afraid to make mistakes, to search, create and share.</p> <p>Her main goals as a teacher are: provide students with correct and targeted information.</p> <p>She has been a teacher for 20 years. For 2 years she has been working in an educational institution where students come to deepen their theoretical knowledge acquired in general education through practice, applying STEAM ideas and methods.</p> <p>The institution has 3 teachers and no permanent students. She has worked as a teacher in a primary school, a gymnasium and a vocational education centre, and at the University of the Third Age. Conducts training for teachers. She has worked as a teacher with people of different ages and has been a practice supervisor and mentor.</p> <p>She is a methodologist and consultant at the STEAM Centre.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Methodologist, STEAM Centre
Teaching experience/professional development of the teacher	20 years
Why he/she decided to become a teacher?	Teaching is motivated by a love for students.
Is he/she planning to change their position? If yes, which position and why?	-
What are the main barriers for teachers' competence development from his/her side?	The challenge is constant change and lack of stability. The biggest challenges are to be able to communicate the latest trends to students in time and to keep up with Lithuania's ever-changing education system. There is a lot of information and it gets in the way of the teacher, they get tired of looking for what is the real information that should be given. Teachers are tired of looking for what is real, what is fake, to sort out and organise.
What are the main challenges for teachers' collaboration from his/her side?	The biggest challenge is fairness . I really encounter teachers in my work that are not willing to share the materials, methodologies, tools they have developed, just because it is their work, their contribution. There are cases where a

Teacher/case n4	
	<p>teacher takes a colleague's methodology, puts his or her name on it and gives it away as his or her own work. Disrespect of copyright towards the teacher.</p> <p>Teachers don't want to share because others just take it and use it as their own. Why share if you don't get a fee, because it takes time to develop a methodology.</p> <p>Sharing would make it easier for everybody, bringing it together, putting it in one place, structuring it, but making it fair.</p>
What are the main challenges for teachers' career development from his/her side?	Sharing experiences, collaboration and resources.
What would he/she need to keep on growing professionally?	Awareness of copyright, fairness, collaboration between different communities.
What would he/she need to improve their collaboration with other teachers/colleagues?	Face-to-face communication is more effective and generates ideas more quickly than at a distance.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	A forum, like social networks - I express my dissatisfaction, if I can still write anonymously, I just write my emotion and leave, and it doesn't stay.
Which concrete suggestions of improvement did he/she have?	<p>If it could be on the principle that there is a problem, it needs to be solved, and we invite people to come together from this hour to this hour to discuss and express their views, that would be more effective. You can express an emotional opinion, but in that emotion you can also get some information.</p> <p>I find the navigation of the platform very confusing. I open a page and if I want to log in, if I want to look for something, it's very overlapping and I don't even know who I am or where I came from. Because, for example, I can find the competences at the top and then I go to the middle of the homepage and I go inside and I find the same thing, but it looks different. The navigation is really confusing.</p> <p>There is a lack of information material on the front page on what to use and how to use it.</p>
Which elements of the platform did he/she find most interesting/useful?	I enjoyed the good experiences, the sharing, the inspiring videos.
Career:	
In which way did the platform inspire/motivate him/her to	"The only useful thing is that our Vice-Minister for Education is a very ordinary person who started his career as a school teacher. This tells any teacher that you can be not only a

Teacher/case n4	
advance their career as a teacher?	teacher, but also a headmaster, even a minister of education, a vice-minister. It is his success story that with just a simple, down-to-earth life experience, he can work like that."
How he/she finds the career section of the platform (what is good, what is missing)?	For career paths, information on the steps to a successful career (what to do) would be useful.
Which suggestions for improvement he/she has regarding the career part?	Interesting examples would be those who have switched from another profession to teaching.
How has his/her view about the teachers' career changed in anyway due to the platform?	Not everyone can be a teacher.
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	"My career took a very different turn very quickly before I had even discovered this platform. It is stagnant, icy these days, but maybe the same inspiring videos make me think that it is not as bad as I think."
How he/she finds the competence section of the platform (what is good, what is missing)?	As a teacher, she hasn't used the examples yet, but will be sure to add them to her materials. Although when presenting the material, it is useful to look at the explanations and examples given to remember or point something out.
Which suggestions for improvement he/she has regarding the competence part?	More practical examples would be welcome.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	A useful opportunity to see what others are doing.
How has his/her view about teacher collaboration changed?	"I always thought that teachers have to collaborate, because if they don't, nothing will happen. And really, when I work with teachers, I see that the ones who don't collaborate, even the children don't like those teachers and don't want to go to them to learn. It's such a closed circle. But in any case, collegial collaboration without competition should be number one in a school. Without competition."
What did he/she find most useful to support teacher collaboration?	Non-competition. The more people work together, the less fear there is of looking at new things. Teachers have very heavy workloads and very limited time.
How he/she finds the collaboration section of the platform (what is good, what is missing)?	The Forum should be active to attract attention. Important information should be visible.

Teacher/case n4	
Which suggestions for improvement did he/she make regarding the collaboration part?	-
Any additional comments that he/she made about the platform:	-

Teacher/case n5	
Age	42
Gender	Female
Pseudonym	
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Her grandmother was a teacher.</p> <p>The key principle as a teacher is to build a relationship with your students. She wants to give the students' knowledge that will be useful in the future.</p> <p>She has been a teacher for 5 years, 3 years at her current school.</p> <p>The school works according to the principles of Waldorf education, paying close attention to the emotional needs of the children and trying to meet them as much as possible. It has over 30 teachers and around 300 pupils.</p> <p>She previously worked as a teacher in a programming school. As a university lecturer, she teaches courses for teachers wishing to re-qualify, and gives lectures at various seminars.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher of informatics and mathematics
Teaching experience/professional development of the teacher	5 years
Why did he/she decide to become a teacher?	While working in an IT company, she saw that people were coming into IT from other backgrounds, so she realised that it was no longer enough to teach IT at university, but to start earlier.
Is he/she planning to change their position? If yes, which position and why?	-
What are the main barriers for teachers' competence development from his/her side?	<p>Bureaucracy.</p> <p>You can develop your competencies without having to go through the formalities and without having to go for the name and the title, and the barriers to competences, one of them is lack of time.</p> <p>Other barrier is the lack of available content.</p>

Teacher/case n5	
What are the main challenges for teachers' collaboration from his/her side?	Time, workload
What are the main challenges for teachers' career development from his/her side?	Improvement or non-improvement, it's very restrictive for teachers in terms of personal development or anything else, it's specific here, in Lithuania, the reform is being introduced, because all the time is just spent on adapting, on understanding what's going to be changed, and the improvement became compulsory, it's like a compulsion to respond to the changes that are coming.
What would he/she need to keep on growing professionally?	Time
What would he/she need to improve their collaboration with other teachers/colleagues?	-
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	I liked the design of the whole platform in general, because now it's all about the visuals to attract attention or not. Then there is the competences area on the platform itself, where there is quite a lot of non-standard information.
Which concrete suggestions of improvement did he/she have?	Perhaps summaries could be added to the careers paragraph, as there are now links to various articles, for example on retraining or similar requirements.
Which elements of the platform did he/she find most interesting/useful?	Discussion forums seem to be just information rather than interactive.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	I liked the fact that it presented options I haven't thought of before.
How does he/she find the career section of the platform (what is good, what is missing)?	The standard career steps for teachers are already known - teacher, senior teacher, etc. But as an education project manager, for example, I think there are more of those specialities as mentors.
Which suggestions for improvement he/she has regarding the career part?	The requirements could be supplemented with specific points, for example, for a senior teacher, supplemented with points to understand whether I can apply here or not as a teacher, so that I don't have to read all that legislation. Specificity, where the requirements are stated, e.g., that you have to have a university degree and other provisions. Then name them. It is good that there are sources to refer to, but when you open them up, it is quite difficult to find out.

Teacher/case n5	
How has his/her view about the teachers' career changed in any way due to the platform?	It's great to see the videos of colleagues. There could be a summary and description of the video, as not everyone can watch it. It's interesting to look at internationalisation.
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	I liked the connections and use of examples in other subjects.
How does he/she find the competence section of the platform (what is good, what is missing)?	Examples of authentic contexts are very useful. And more examples are needed.
Which suggestions for improvement he/she has regarding the competence part?	There is an attitude among students that if I study English, I won't need maths. Or I will be an artist and I don't need maths. Those areas where they think that they are far away from mathematics, like law here, for example, also that I will be a lawyer, I don't need mathematics. It is more of those scenarios.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	Collaboration is one of the tools for improvement.
How has his/her view about teacher collaboration changed?	Collaboration is a sharing of experience, a view from the other side, so it is useful in any case.
What did he/she find most useful to support teacher collaboration?	More dissemination is needed, foreign forums are more interesting.
How does he/she find the collaboration section of the platform (what is good, what is missing)?	Follow forums abroad to get new ideas. It may be that if the teachers don't have very good digital competences, it may look a bit like it's just presenting information and not interactive activities.
Which suggestions for improvement did he/she make regarding the collaboration part?	News relevant to teachers should be published so that they can express their views too.
Any additional comments that he/she made about the platform:	

Reporting on key issues: evidence collected and responses to research questions

Lithuania

Partners are encouraged to **draw on evidence to support their case study report** based on the selected cases. Evidence may come from different sources (e.g., teachers' written responses to open questions about the 3C4life platform; quotations from the 5 teachers' interview or Matomo analytics related to the use of the platform in any partner country). Quotations showing teachers' responses are highly appreciated to illustrate any of the key points.

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
Which elements of the platform did teachers find the most interesting or useful to know about different career pathways related to the teacher profession?	<p>"Videos where specific people speak are the most engaging, but you don't always have time to watch the whole video" (Case n2)</p> <p>"The only useful thing is that our Vice-Minister for Education is a very ordinary person who started his career as a school teacher. This tells any teacher that you can be not only a teacher, but also a headmaster, even a minister of education, a vice-minister. It is his success story that with just a simple, down-to-earth life experience, he can work like that." (Case n4)</p> <p>It's great to see the recordings of colleagues. (Case n5)</p>	
In which way did the platform help teachers to explore different career pathways related to the teacher profession (mentoring, school management, educational administration...)?	This is more useful for teachers who are just starting out in their careers to see what they can achieve next. (Cases n1, n3, n4)	

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
Are there any aspects of the 3c4life platform that can be improved in terms of encouraging teachers to explore different career pathways related to the teacher profession?	Short descriptions of the references to the sources could be provided (Case n5).	
In which way did the platform motivate teachers?	The most useful area is the Competences area, which provides practical examples that can be used in your own lessons or are useful in preparation for the lessons. (Cases 1-5)	
How views about the teaching career have changed as a consequence of the platform use?		
Which elements/resources of the platform are especially interesting to develop particular skills and competences relevant for the teaching profession nowadays?	Teachers liked the structuring of the content (Case n1, Case n2, Case n3)	
Are there any aspects of the 3c4life platform that can be improved in terms of supporting the development of useful teaching competences? Do teachers miss any relevant aspect in this respect?	<p>More practical examples are needed (Case n1, Case n2, Case n4, Case n5)</p> <p>Examples could be given by level, such as easy, more challenging or even for special needs students (Case n1)</p> <p>It would be useful to be able to bookmark what is relevant to you, to see what is new. (Case n1, Case n5)</p>	
How did the platform support teacher collaboration? Why? Which elements/features of the platform support the building and development of communities of practice? Which elements were best appreciated by teachers in this respect?	<p>All the respondents appreciated the international forum as an opportunity to find out what is happening in other countries and what practices are in place.</p> <p>It was noted that teachers are reluctant to share their resources and materials, especially in forums on competition and copyright (Case n4)</p>	

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	Teachers prefer live communication and collaboration (Case n1, Case n3, Case 4)	
How do teachers' views about teacher collaboration have changed as a consequence of the use of the platform?	No change. They see it as a very important aspect of their development (all Cases)	
<p>Do teachers miss anything in the platform to support teachers' collaboration?</p> <p>Do teachers have any concrete suggestions to improve the platform design in terms of promoting teacher collaboration?</p>	<p>"Forums just for socialising are fine, but no one will share their material or anything like that." (Case n1)</p> <p>The teaching workload is very huge and teachers don't have much time to read, discuss, etc., so they are looking for what they can immediately apply in their practice, in their work. (Cases n 1-5)</p> <p>More dissemination is needed, foreign forums are more interesting (Case n5)</p>	
Is there any other relevant aspect you would like to discuss in relation to the 3C4life platform?	Teachers need a space on the platform where they can upload their STEAM education experiences, like sticky notes on JamBoard (Case n3)	

**3C4Life**
Career Guidance, Collaborative Practice
and Competence Development

Partners' case study report

PORTUGAL

Description of how the 3C4LIFE platform has been adapted and promoted in Portugal

According to the project description, any partner should report about 5 cases to provide an in-sight into how the platform has been used by different teachers in any country. We assume that the implementation of the platform (how it was promoted and adapted) is similar for all the cases reported by any partner. If you consider that your responses to the table below will vary depending on the individual case being reported you should provide a different table for any case.

Please, respond to the following questions to illustrate how the platform has been promoted and adapted in your country:

Questions	Responses of partners from: PORTUGAL
1. When and how was the teach4life platform promoted in your country and how successful was this from your point of view?	The teach4life platform was launched in early December 2022, through a full week of training sessions. The project objectives, the potential of the platform, how teachers could learn more about their different career profiles, the different STEM approaches and the collaborative platform were presented. Around 170 teachers participated in these initial sessions, they were very enthusiastic and motivated to learn about the project's potential and about what the platform offered.
2. What kind of adaptations have you made to the 3C4Life platform for its use in your national context? Why?	"We haven't made any significant changes to the platform. Instead, we enhanced platform activities by implementing a 50-hour professional development program for teachers. The program started in December and ended in May.
3. Have you added new/different materials/examples? If your answer is yes, Which ones and in which way are they different from the international version? Describe them.	We produced three videos about the following activities: <i>"In the sights of the magnetic field"</i> , <i>"Using synthetic fertilizers from green ammonia: Yes or No?"</i> and <i>"Instant Ice"</i> . These videos were included in the activity introduction on Portuguese platform.
4. Have you offered the 3C4Life platform in the context of an official teacher professional development course? If your response is yes, explain the characteristics of the course (number of maximum participants, number of hours, existence or not of specific support and following up by teacher educators, etc...).	Teachers' involvement in the platform took place through a teacher professional development program accredited by one Portuguese institution. The teacher training lasted 50 hours: 25 h dedicated to autonomous activities, such as exploring the careers and competences sections of the platform and collaboration between teachers using the forum; and 25 h were face-to-face sessions where the teachers explored the STEM

	<p>activities offered by the platform, as well as discussed the concept of SSI, IBL and CBL.</p> <p>Collaboration between teachers and between teacher educators (Mónica Baptista, Iva Martins, Teresa Conceição, João Paulo and Nuno Dorotea) was a central dimension of this program. Teachers educators developed a collaborative relationship with the teachers, stimulating teachers to explore the platform and the 3Cs.</p> <p>Participated in the teacher development program around 170 teachers – split into 12 classes.</p> <p>Concerning pre-service teachers, the participants were around 40 PST from the Master in Physics and Chemistry teaching and the Master in Informatics teaching. The teachers educators were Mónica Baptista, Teresa Conceição and Nuno Dorotea who involved PST with the platform during the second semester (January to May) in a curricular unit.</p>
<p>5. How have you encouraged and monitored the use of the platform by participants?</p>	<p>Teachers used and explored the platform during the teacher training sessions. They were also encouraged to do the same through the autonomous activities proposed and by the project team, who monitored their answers in the forum discussion.</p>
<p>6. Indicate key dates when you performed actions to promote the use of the platform (social media posts, platform workshops, strategic meetings...)</p>	<p>October 31st, 2022 – The news of the project launching was advertised in the website of the Directorate-General of Education, inviting teachers from all parts of the country to participate in the teacher training sessions offered by the project 3C4Life.</p> <p>From December 13th to 17th, 2022 – First teacher training sessions.</p> <p>From December 22nd 2022 on – Posts were started on the teach4life Portuguese’s social media (Instagram, Facebook and Twitter) to spread information regarding the use and exploration of the platform.</p> <p>June 3rd, 2023 – II National Conference in STEM Education.</p>
<p>7. Have you suggested particular paths when exploring and using the 3C4Life platform? If your response is yes, explain which ones and why.</p>	<p>During the training sessions teachers were motivated to explore all platform sections. The competencies activities were discussed during the sessions and teachers were encouraged develop the activities with their students.</p>
<p>8. What measures were taken to initiate collaboration in the forum? How successful were they and why?</p>	<p>To ensure all teachers were doing it autonomously, it was proposed a task in which teachers should write and post, in the forum, about their previous</p>

	experiences in STEM education, their perceptions regarding different career profiles and the potentialities of the activities in the competencies platform section.
9. How have you ensured the number of evaluation questionnaires before using the platform, 3 months after and 6 months after starting to use the 3C4Life platform?	Teachers were invited to fill the questionnaire during the training sessions and this was monitored by the Portuguese team. Some teachers, who started the training, did not finish and gave up. However we guaranteed the proposed number of teachers to participate in the project.
10. How have you selected participants for the 3C4Life case studies?	It was proposed to all teachers to implement one of the activities available in the section of the competencies. Considering their participation in the training sessions and the collaboration in the forum discussion, the participants of the case studies were selected from the teachers who implemented at least one of the activity with their own students. We also took into consideration the availability of teachers.

Description of individual cases in Portugal

Include all the relevant information to characterise the teachers participating in your national case studies. **Fill one form for each of the 5 teachers** participating in your national case studies. Any partner should provide **5 forms** corresponding to any of the cases (any form will be considered a case).

You can use your own knowledge about the teacher and all the information you collected about him/her before and during the interview (see the templates provided for these purposes).

Case number: 01

Country: Portugal

Teacher/case nº	01
Age	45
Gender	Male
Pseudonym	João

Teacher/case nº	01
<p>Background information:</p> <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>As a teacher, João's motivation stems from his early experiences of giving music lessons, which inspired him to pursue a career in education. His primary goal as an educator is to nurture a passion for learning and cultivate a sense of responsibility in his students. João draws inspiration from his own mathematics teacher, who passionately addressed students' doubts and prepared them for challenges. In terms of school description, João portrays his current institution as a diverse community of educators, with some lacking motivation while others are actively involved in innovative projects.</p> <p>The school has around 100 teachers and 900 students. It takes pride in participating in national and international initiatives and strives to adapt to the digital age and societal advancements. With 23 years of teaching experience, João has worked in a total of eight different schools. Throughout his career, he has held various positions such as project coordinator, assessment coordinator, and assistant to the school administration.</p>
<p>General Information regarding teaching: career and professional development and collaboration</p>	
<p>Current position, school</p>	<p>He is a schoolteacher, and, currently, he works as a teacher trainer, responsible for implementing and monitoring national projects under the Directorate-General of Education.</p>
<p>Teaching experience/professional development of the teacher</p>	<p>João's teaching experience spans over 23 years, encompassing a variety of schools and educational settings. Throughout his career, he has embraced opportunities for professional development, continually refining his pedagogical skills and deepening his understanding of effective teaching practices. João has worked in eight different schools, gaining valuable insights into diverse teaching methodologies and approaches. He has held various leadership positions within the school, including project coordinator, assessment coordinator, and assistant to the school administration. These roles have provided him with a comprehensive perspective on school management and educational administration, further enriching his teaching expertise.</p> <p>In addition to his extensive teaching experience, João has taken on the role of a teacher trainer, actively contributing to the professional growth of his peers. Collaborating with the</p>

Teacher/case nº	01
	<p>Directorate-General of Education, he implements and monitors national projects, ensuring their successful integration into classrooms (namely related with digital skills). João's commitment to lifelong learning is evident through his participation in workshops, conferences, and ongoing learning opportunities. By staying abreast of emerging educational trends and incorporating innovative approaches, he strives to create engaging and relevant learning experiences for his students.</p> <p>Overall, João's diverse teaching experience, coupled with his dedication to professional development and his role as a teacher trainer, exemplify his passion for education. Through his leadership, continuous growth, and commitment to excellence, he actively contributes to the advancement of the teaching profession and positively impacts the lives of his students.</p>
<p>Why he/she decided to become a teacher?</p>	<p>João decided to become a teacher because of his early experiences in giving music lessons. As he delved into teaching music, he realized that he had a passion for sharing knowledge and guiding others in their learning journeys. The opportunity to combine his love for music with the role of an educator led him to pursue a career in teaching. Becoming a teacher allowed João to continue his involvement in the field of music while also nurturing a deep sense of fulfilment that comes from helping students grow and succeed. The intrinsic joy he derived from teaching, coupled with his desire to make a positive impact on young minds, ultimately motivated João to embark on the path of becoming an educator.</p>
<p>Is he/she planning to change their position? If yes, which position and why?</p>	<p>João is already fulfilling his plans to change his position within his career. He has transitioned into the role of a teacher trainer, responsible for implementing, monitoring, and supporting national projects in collaboration with the Directorate General of Education. In this capacity, João is actively involved in the professional development of fellow educators and contributes to the implementation of innovative educational initiatives.</p>
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>According to João, the main barrier to the development of teachers' competencies is lack of time. He points out that nowadays people are so absorbed with fulfilling the school programme that they have no time to think about new methodologies, solve problems in the classroom or even reflect on their own careers. This lack of time leads teachers to feel overloaded and often resort to medication to cope with the pressure. João points out that this reality makes</p>

Teacher/case nº	01
	<p>teachers stop doing what they love and lose the ability to seek solutions to the challenges they face in the classroom. In addition to lack of time, João mentions that family responsibilities are also a factor that hinders teachers' professional development. Many teachers already have families and, as they cannot dedicate enough time to their own training and knowledge, they end up having to take time away from family life. However, many choose not to do this, making it even more challenging to pursue professional growth.</p>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>According to João, one of the main challenges to collaboration among teachers is the fear of exposure and the fear of not doing something right. Many teachers tend to feel shy and reserved, avoiding exposing their ideas and contributions for fear of being wrong. In addition, a lack of humility can also be a barrier, as some teachers may feel pretentious about sharing their opinions and contributions. However, João stresses the importance of overcoming these barriers and valuing all contributions, even if they seem insignificant, as seemingly disconnected ideas can give rise to very interesting projects and practices. He encourages teachers not to be afraid to give hunches and answers, because all contributions are valid and can enrich the collaborative process. João emphasizes that during the training, he encourages teachers to express themselves freely, because all answers are considered correct and serve as a starting point to deepen the discourse and promote the deconstruction of fears and fears related to collaboration among teachers.</p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>According to João, one of the main challenges in teachers' career development is lack of time. Time is a scarce resource, and teachers are often overloaded with fulfilling curriculum and other responsibilities, which prevents them from devoting sufficient time to their professional development. Even when training and development opportunities are offered, many teachers feel they do not have time to explore them adequately. This lack of time ends up limiting teachers' progress and updating on emerging issues such as the development of core competencies and computational thinking.</p> <p>Another challenge pointed out by João is the lack of time explicitly dedicated to professional development in teachers' tasks. There is no specific time or space set aside for exploration and enhancement of pedagogical skills. Instead, the focus is often on meeting curriculum programmes, which</p>

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	<p>are not always up to date with changes in society and access to knowledge. Although opportunities to access professional development exist, lack of motivation is a significant obstacle. Many teachers feel discouraged from investing in their development due to time constraints and the perception that such initiatives are not a priority.</p> <p>It is necessary to create spaces and specific moments for teachers to improve and update themselves, taking into account the current demands of society and changes in the educational field. In addition, it is essential to promote a culture of motivation and recognition of the importance of continuing professional development for the success of teachers and the advancement of education.</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>John says that to continue to grow professionally, he recognizes the need to learn to prioritize his activities. He mentions that one of his faults is not being able to say "no" and trying to be involved in everything as best as possible. However, he realizes that it is important to learn to say "no" and prioritize your responsibilities because it is impossible to be everywhere and do everything simultaneously.</p> <p>In addition, João stresses the importance of not forgetting the "me" and taking care of his personal well-being. He emphasized the need to have moments dedicated to himself, whether it is watching a television program, taking a bath, or simply contemplating the world around him. He emphasizes that if he does not build and care for his "self", he will not be able to provide well-being to others, such as his family and the educational community. John believes that prioritizing the "self" is not selfishness, but a way of being well with oneself in order to be able to offer the best to others.</p> <p>Finally, João comments on the lack of motivation and appreciation in the teaching profession. He notes that many teachers feel they do not have time to attend training courses or seek professional development due to the intense workload and pressure to fulfil curriculum programs. This mentality ends up affecting teachers' motivation to invest in their own training and professional growth. He recognizes the importance of learning to prioritize, setting limits, and not trying to embrace all opportunities. He also highlights the need to look after personal well-being and find moments for self-care. Furthermore, he emphasizes the importance of combating the lack of motivation and appreciation in the teaching profession, seeking to value himself and realize the relevance of his work.</p>
<p>What would he/she need to improve their collaboration</p>	<p>According to João's response, to improve collaboration between other teachers, peers, and colleagues, it is</p>

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with other teachers/colleagues?	<p>necessary to have flexibility and let work move forward even when it is not exactly your way. He highlights the importance of avoiding making all decisions alone and being open to feedback from others to promote effective collaborative work. John mentions that he has been cooperative, collaborative, and available in his work with other teachers, and believes that he is able to work collaboratively and be a good colleague in this regard.</p> <p>He mentions concrete examples of his collaboration, such as having gone to several schools and being well received, carrying out activities together, creating a shared space for documents and guidance, distributing tasks among colleagues and holding meetings in the evenings when everyone is available. John also highlights the challenge of limited time and mentions the importance of taking moments for self-care, such as reading a book of personal interest.</p>
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	<p>João considered the intuitive interface and the videos of colleagues as interesting and useful aspects in the platform. On the other hand, he pointed out the need for improvements in the forums, highlighting technical issues and the lack of functionalities, suggesting the creation of challenges and a clearer organisation of the themes in the forums.</p>
Which concrete suggestions of improvement did he/she have?	<p>John pointed out some aspects that he believes should be improved in the platform:</p> <p><i>Forums:</i> He mentioned that the forums are not so intuitive and functional. He felt difficulties in editing the posts and pointed out the need to improve the functioning of the platform in this area.</p> <p><i>Creation of challenges:</i> João suggested that there should be a team in the forum responsible for creating challenges, as this would make it easier to search and use the available information. He believes that the platform could benefit from forums with specific themes and a more organised structure.</p>
Which elements of the platform did he/she find most interesting/useful?	<p>John found the following aspects of the platform most interesting/useful:</p> <p><i>Intuitive interface:</i> John thought that the platform's interface was intuitive, allowing easy navigation and no repeated information, avoiding confusion.</p> <p><i>Videos of colleagues:</i> John highlighted that the videos of colleagues in the various areas were very interesting. He appreciated being able to hear others talking, as this is more</p>

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	<p>motivating than simply reading information. In addition, he mentioned that the videos allow one to read facial and body expressions, which enriches communication.</p>
Career:	
<p>In which way did the platform inspire/motivate him/her to advance their career as a teacher?</p>	<p>João mentioned that the videos of interviews with other teachers were very useful to see happy and inspired teachers in different projects and contexts. He highlighted that these videos opened his eyes to the variety of possibilities within the teaching profession.</p>
<p>How he/she finds the career section of the platform (what is good, what is missing)?</p>	<p>João did not directly specify how the platform helped him to explore different career paths related to the teaching profession. However, he mentioned that he has had previous experiences as a coordinator and has held management positions in several schools. Therefore, it is possible to infer that his exploration of different pathways occurred outside the platform, through his previous experiences and direct contact with the education system.</p>
<p>Which suggestions for improvement he/she has regarding the career part?</p>	<p>There was no explicit mention of what John missed in the platform about exploring different career paths related to the teaching profession.</p>
<p>How has his/her view about the teachers' career changed in anyway due to the platform?</p>	<p>João did not make any suggestions for improving the platform's features related to the provision of information about different career development pathways.</p>
Competence	
<p>In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?</p>	<p>João highlights that the platform motivated him as a teacher by offering activities structured in a clear and organised way. He mentions that, through these activities, it is possible to understand how to apply the curriculum, plan the lessons and identify the necessary resources. The platform provides structured studies, eliminating the need for improvisation and reducing the time spent preparing supplementary materials.</p> <p>João emphasises that the activities provided on the platform are validated and ready to be used in the classroom. He highlights the ease of access to the activities, allowing teachers to adapt them according to their knowledge and teaching style. By using these activities, John felt confident and supported as they are a complete resource that serves as a starting point for his lessons.</p>

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	<p>John recognises that although the way of teaching may vary from teacher to teacher, the essence and core of the activities are present in the platform. This gives him the freedom to adapt the content according to his approach, making him more active and efficient in the teaching process.</p>
<p>How he/she finds the competence section of the platform (what is good, what is missing)?</p>	<p>João praises the competencies section of the platform, describing it as extraordinary. He points out that often only general concepts are talked about, leaving the operationalization and inclusion of these concepts up to the teachers. However, with the ready-to-use tasks offered by the platform, he considers the activities to be very well designed. He highlights the comprehensiveness of the topics covered and how they allow us to think of other tasks based on the existing ones, enabling the exploration of different situations within STEM.</p> <p>In relation to the resources available, João states that everything he needed was there. He highlights the ease of implementation of the tasks, as they already had the theme, the activity, and the learning scenario built in. This allowed him to focus on the pedagogical content, without having to spend time planning all the details of teaching. He mentions that the platform also offers the possibility for teachers to create their own scenarios but suggests that these creations are validated by a responsible entity to ensure quality and pedagogical content.</p> <p>João values the reliability and quality of the activities available on the platform. He recognises the importance of a rigorous process of validation and experimentation, as this ensures that the activities meet the proposed pedagogical objectives and can be successfully implemented in the classroom. In this way, he emphasizes the relevance of having activities that have been tested and improved by other teachers, which gives them a backing and a solid basis to be used in teaching.</p>
<p>Which suggestions for improvement he/she has regarding the competence part?</p>	<p>He proposes the inclusion of resources that allow teachers themselves to be producers of learning scenarios in the competencies section of the platform. He stresses the importance of these scenarios being validated in order to avoid confusion and ensure the quality of the content made available. João expresses the concern that, on the internet, there is a significant amount of non-validated material, which makes it difficult to identify pedagogically effective resources.</p> <p>Therefore, João suggests the possibility of teachers creating learning scenarios, which would then be submitted to a validation process by a competent body or through a peer</p>

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	<p>group, especially formed by teachers involved in the STEM project. This initiative would allow teachers themselves to contribute to the construction of pedagogical resources, adding their experiences and practical knowledge.</p> <p>In addition, João highlights the importance of maintaining the project and its product in the long term, rather than closing it down after a certain period. He believes that educational projects should have continuity, enabling collaboration, transversality and interdisciplinarity among teachers. In this sense, he considers that the competences section of the platform is a valuable resource to support teachers in their pedagogical practices.</p>
Collaboration	
<p>In which way did the platform inspire/motivate him/her to for collaboration with other teachers?</p>	<p>João expressed that in relation to the platform itself, he did not use it to promote collaboration among colleagues. He mentioned that some questions were addressed for autonomous work, but not for the development of projects or learning scenarios. João emphasized that collaboration occurred mainly within the project as a whole, during the trainings and not specifically in the product offered by the platform.</p>
<p>How has his/her view about teacher collaboration changed?</p>	<p>João shared that his view has not changed significantly in this regard. He mentioned that collaborative work was already part of his professional practice before and that he continues to believe more and more in the importance of this approach. The experience with the platform only reinforced the value of collaboration in his perspective. His views on collaboration between teachers did not change substantially, but were reinforced by the experience with the platform. He already valued collaboration as part of his practice and increasingly believes in the importance of this concept for professional development and improved teaching.</p>
<p>What did he/she find most useful to support teacher collaboration?</p>	<p>João highlighted that, in terms of the project, he found the proposed autonomous work to explore the platform and write his perceptions of each of the sessions on the forum very useful. He said that if we had not done this, most teachers would not have explored the platform.</p>
<p>How he/she finds the collaboration section of the platform (what is good, what is missing)?</p>	<p>João highlights both the positive aspects and those that can be improved. According to him, as teachers, they had access to each other's contributions and could learn from the responses of all participants. This exchange of knowledge and</p>

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	<p>insights was an interesting part of the collaboration on the platform.</p> <p>However, João mentions that in relation to building something on the forum, there was no active participation in that sense. He notes that the management and streamlining of the community of practice was led by the team responsible for the design of the platform. Although they have achieved a genuine community of practice, João highlights that a more authentic dynamic can be achieved when there are no defined roles. He believes that projects can emerge naturally from participants' interventions and responses, allowing everyone to contribute in a meaningful way.</p> <p>João recognises the value of collaboration on the platform, especially through the sharing of responses and learning among teachers. However, João also highlights the importance of a more decentralized and participatory dynamic, in which teachers themselves can play an active role in building collaborative projects and initiatives.</p>
<p>Which suggestions for improvement did he/she make regarding the collaboration part?</p>	<p>One of the suggestions mentioned was the continuity of the platform with the organisation by themes. João considers this approach interesting, as it allows users to search and find information in an organised way. He emphasises that being able to see colleagues' contributions is very useful for him as a teacher and facilitator, providing a favourable environment for the exchange of knowledge.</p> <p>In addition, João emphasises the importance of small, short-term challenges to make the community more dynamic. He suggests that the platform can present simple topics with research problems that can be explored and lead to the creation of learning scenarios. John also makes a remark about the length of these challenges, mentioning that due to the lack of time, they could be similar to short videos, about three minutes long.</p>
<p>Any additional comments that he/she made about the platform:</p>	<p>No further comments</p>

Teacher/case nº	02
Age	46
Gender	Female

Teacher/case nº	02
Pseudonym	Maria
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Maria has a 24-year track record as a teacher and decided to pursue this career because of her passion for teaching. Since the beginning, her motivation has been to share knowledge and help students to achieve success. The pedagogical relationship is one of the most important goals for her.</p> <p>In addition, Maria comes from a family of teachers, which may have influenced her career choice. She finds inspiration in innovative teachers who seek new approaches and strategies to make education more interesting and effective. Although there are 1100 students, Maria describes it as small and familiar. Throughout her career, she has accumulated experience in different places, having worked in seven different schools.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Maths Teacher
Teaching experience/professional development of the teacher	<p>Maria's teaching experience spans a period of 24 years, during which she has dedicated herself tirelessly to developing her pedagogical practice. Her goals as a teacher are centred on the importance of the pedagogical relationship for students' success. Throughout these years, she has constantly sought to improve her skills and knowledge, attending training courses and keeping up to date with educational trends.</p>
Why he/she decided to become a teacher?	<p>Maria decided to become a teacher because of her passion for the act of teaching. Her choice was motivated by the pleasure of sharing knowledge and making a difference in the lives of her students. Throughout the interview the teacher expressed how much she loves what she does and that this is the main reason for continuing in her profession.</p>
Is he/she planning to change their position? If yes, which position and why?	<p>Although she has held different positions in her career Maria still has no immediate plans to move to another position. However, she keeps an open mind for future opportunities that may contribute to her professional growth.</p>
What are the main barriers for teachers' competence development from his/her side?	<p>Maria's opinion on the challenges for teachers' career progression is clear and reflects the reality in Portugal. She mentions that career progression is marked by a linear progression, based on years of service, without considering teachers' merit or performance. This makes it difficult for teachers to evolve professionally and to get recognition for their hard work. The lack of progression by merit and the</p>

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	<p>absence of opportunities for newcomers are also complicating factors in this career. Maria highlights that educational and financial policies have a negative impact on this process, leading to setbacks and career freezes. She shares her own experience, mentioning that, even after 24 years of service, she has not even reached the halfway point in her career and expresses her concern about the prospects for future progression.</p>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>On the challenges for collaboration among teachers, she reveals the growing need for greater collaboration and teamwork. She mentions that, in her school, a common hour has been created for teachers to work collaboratively. However, Maria notices that a single hour per week is not enough, considering the large number of classes and years that teachers have to deal with. She stresses the importance of having enough time to collaborate effectively. This teacher proposes the idea of having collaborative working hours per class council, where teachers working in the same class would have at least one hour per week to meet and organise tasks collaboratively. She believes that this approach would create deeper and more productive collaboration. However, she acknowledges the difficulties in implementing this practice now, due to the lack of time and resources. Maria also highlights the importance of collaborative supervision as another form of collaboration between teachers, where they can seek help and mutual support when facing difficulties in the classroom. Her opinion reflects the need to create structures and spaces dedicated to collaboration among teachers in order to promote the sharing of experiences, the exchange of knowledge and the improvement of pedagogical practices.</p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>One of the main obstacles to developing teachers' competencies is lack of time. She mentions that many teachers are interested in seeking training, but due to their intense workload and daily responsibilities, finding the time to dedicate to training becomes a challenge. Maria highlights that the government does not clearly prioritise investment in teacher training, which contributes to the scarcity of opportunities and resources dedicated to this end. Although there are some free afternoons in schools, they are not used for training due to the lack of hours specifically allocated for this purpose. In addition, Maria points out that much training takes place after regular working hours have ended, which can be exhausting for teachers who are already overloaded. She mentions her own experience of attending evening</p>

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	<p>training sessions, returning home late at night and having to start work again the next day. Lack of time also impacts on teachers' ability to engage in research and investigation to improve their teaching practice. Maria believes that adequate and dedicated time for training is essential for teachers to implement quality practices and develop professionally.</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>According to this teacher, to continue to grow professionally, more than just time is needed. She highlights the importance of adequate resources and infrastructure in classrooms. Although students are said to have computers, the reality is that they face difficulties such as lack of knowledge about how to use the internet, absence of connection or limitations in the internet provided by the school. She mentions simple but problematic situations, such as students not bringing their computers with enough charge or the lack of plugs to connect them. Even when all the computers are on, the overload can cause problems on the school's board. These complications hinder the teaching and learning process. Therefore, for Maria, besides having time to grow professionally, she emphasizes the importance of having adequate conditions at school, not only to work with her colleagues, but especially with her students. She admits that her motivation is a little shaken and confesses to even thinking of giving up, due to the difficulties she faces. She stresses the need for motivation and support, not only for teachers but also for students. The lack of investment in education and the absence of adequate resources are factors that affect the valuing of teachers and their professional growth. Maria believes that significant investment in education is crucial, including adequate infrastructure and technological resources. She highlights the importance of teachers feeling valued and having favourable conditions for their professional development. The lack of these elements affects the quality of education and generates frustration and demotivation.</p>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>To improve collaboration with other teachers and colleagues, the teacher highlights some measures that have already been implemented at the school, but acknowledges that they are still in the process of adaptation. She mentions that the school is quite innovative, which can be positive, but also results in additional workload due to the commitment to follow innovative ideas. One of the initiatives that have been implemented is the division of classes to allow for collaboration between</p>

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	<p>teachers. They conduct advisory classes together or divide the classes, allowing each teacher to work with a portion of the students and exchange later. Maria acknowledges that implementing these partnerships has been challenging as they are in the early stages of adaptation and are still experimenting with ways to make them effective.</p> <p>This teacher believes that collaboration between teachers is an asset, both in the classroom and in advisory activities. She highlights that having two teachers present provides different approaches to explaining to students, allowing them to hear different perspectives. In addition, collaboration facilitates better monitoring of students, especially in large classes with students with little autonomy. Maria emphasises the importance of investing in collaboration between teachers as a bet for the future. She believes this collaboration is essential and advocates greater investment in this area, recognising its potential to improve teaching and student learning.</p>
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	<p>Maria's overall experience of using the platform was highly satisfactory. She praised the convenience, the collaborative sharing and the variety of resources offered. The platform not only helped Maria save time, but also revitalised her professionally, providing her with new ideas and inspiration. With the suggestion to improve internal research, Maria believes that the platform has the potential to be even more effective and beneficial for all teachers who wish to innovate in their educational practices.</p>
Which concrete suggestions of improvement did he/she have?	<p>This teacher mentioned that she sometimes finds it difficult to find specific tasks again. She suggested the implementation of a faster and more efficient search menu on the platform to facilitate the search by keywords or previously viewed tasks. This improvement would be useful to optimize time and avoid those users feeling a bit lost when browsing the available tasks.</p> <p>Maria recommended that the platform be explored and used by more teachers, emphasizing its usefulness for collaborative planning and task sharing. She stressed the importance of investing in tools that facilitate collaboration between educators, highlighting the platform as an excellent initiative in this regard. The suggestion is that teachers take advantage of the tasks already available on the platform and adapt them as necessary, stimulating pedagogical innovation and the exchange of ideas between colleagues.</p>

Teacher/case nº	02
Which elements of the platform did he/she find most interesting/useful?	The tasks were the most interesting and useful aspect for the teacher. She praised the ease of access to pre-designed tasks and resources, which saved time and increased the effectiveness of planning. The possibility to explore different links and adapt the tasks to the reality of the classroom was also highlighted as an asset. In addition, the videos available on the platform helped to rekindle her motivation and remind her of the purpose of her daily dedication.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	<p>The platform inspired and motivated this teacher by presenting a different perspective and guidelines that she had not considered before, especially regarding the mentoring of pre-service teachers. She mentioned that in the school where she works, located in a peripheral area of Lisbon, there might be fewer opportunities for pre-service teachers to carry out internships or for school teachers to assume the role of cooperating teacher. Therefore, when watching the videos available on the platform, the teacher was reminded of an area that she had not yet explored: the possibility of being a cooperating teacher and guiding future teachers in her career.</p> <p>Although this opportunity has not yet materialized for her, this teacher recognizes the importance of being open to new experiences and sharing her knowledge with future education professionals. By watching the videos, she was encouraged to consider how she could play this mentoring role and contribute to the training of new teachers.</p>
How he/she finds the career section of the platform (what is good, what is missing)?	<p>The teacher expressed that she thinks it is important to have videos that show different career alternatives for teachers. She specifically mentioned that she enjoyed seeing information about the career of a cooperating teacher, which involves mentoring internships and pre-service teachers. Although she noted that there are not many new teachers in her field of mathematics at the moment, she expressed a desire to undertake this activity in the near future as she sees value in mentoring and assisting these teachers.</p> <p>In addition, the teacher mentioned that she already has several positions and responsibilities, including department coordinator, member of the school evaluation team, and pedagogical team. She stresses that these positions already demand some of her time and energy.</p> <p>Nevertheless, she shows interest in becoming involved in pre-service teacher mentoring in the future, as she recognizes its potential positive impact within the classroom.</p>

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Which suggestions for improvement he/she has regarding the career part?	The teacher did not make any suggestions for this section, specifically.
How has his/her view about the teachers' career changed in anyway due to the platform?	<p>Maria mentioned that she was already aware of these possibilities, due to the completion of her master's degree in school administration at the Institute of Education. However, she emphasized that she really enjoyed watching the videos as it reminded her of these pathways and highlighted the importance of making people aware of the various career options that exist.</p> <p>The teacher acknowledged that not all people are aware of these career opportunities. She stated that at one point in her life, she considered pursuing one of these alternative paths. However, she explained that the idea of leaving her students to take up a position in a training centre or as a school headmaster, which would involve more bureaucracy and less direct contact with students, was something that stuck her to the classroom.</p> <p>Again, she expressed her passion for the students and stated that it is this part of the job that keeps her committed to the classroom and the school. Despite this, she stressed that one can never say never as circumstances may change in the future. Still, she considered the experience of learning about different career paths as something interesting and motivating, not only for her, but also to encourage others.</p>
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	<p>The platform inspired and motivated teacher Maria in various ways to advance her knowledge and find inspiration for teaching. She described the motivation as something really positive, as the platform offered a source of stimuli that helped her not to forget important aspects of her teaching practice.</p> <p>Lack of time often leads us to pursue the more comfortable areas of our life, but the platform served as a constant reminder that there are other possibilities and resources available. The teacher mentioned that by exploring the tasks and materials on the platform, she found the immediate motivation to try new things and expand her pedagogical practices.</p> <p>She highlighted that the platform sparked her interest and made her ask herself, "Am I capable of doing this, of integrating these ideas?" For the teacher, the ability to apply the proposals suggested in the platform was an important</p>

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	<p>motivator to advance her knowledge and development as a teacher.</p> <p>She emphasized the importance of taking the time to explore and integrate the resources found, even if they are all available in one place.</p>
<p>How he/she finds the competence section of the platform (what is good, what is missing)?</p>	<p>The teacher found the skills section of the platform a valuable source of resources and guidance for improving her teaching practices, especially in the context of mathematics. She emphasized that it was not just a question of carrying out STEM activities, but of understanding how to work these activities effectively with students.</p> <p>Maria stressed the importance of acquiring specific skills to develop the proposed tasks. She valued the clarity and awareness provided by the platform, allowing her to understand how to implement the activities and apply the maths concepts within the school context. The available resources were described as fundamental, as they saved her time in searching for suitable materials. Maria was able to explore the resources selected by the platform and identify what was relevant to her school and what could be implemented immediately.</p> <p>She mentioned that in mathematics there are often challenges in finding ways to integrate the subject into other teaching contexts. The platform contributed positively in this sense, as the tasks proposed were concerned with incorporating mathematics in a relevant way. This allowed Maria to see concrete examples of how mathematics could be applied in different situations, both in collaboration with her colleagues and in activities she could carry out herself. The articulation between subjects was valued and considered an important contribution to her pedagogical practice.</p> <p>Maria praised the structure and content of the tasks, stating that they not only indicated the method to be followed, but also offered suggestions and openings that allowed adaptation to the reality of each teacher. She considered the platform's guidelines well-structured and expressed her satisfaction.</p>
<p>Which suggestions for improvement he/she has regarding the competence part?</p>	<p>Maria expressed full satisfaction regarding the skills section of the platform, highlighting that nothing was missing and emphasizing her appreciation for the resources available. She suggested that the platform may continue to add even more resources in the future.</p>
<p>Collaboration</p>	

Teacher/case nº	02
<p>In which way did the platform inspire/motivate him/her to for collaboration with other teachers?</p>	<p>The platform inspired and motivated teacher Maria to collaborate with other teachers in meaningful ways. She mentions that the training sessions provided an immersive and teamwork experience, which made her feel like a student again. This perspective transformed her view on teaching, especially in relation to implementing STEM activities and improving students' performance in mathematics. Maria expresses surprise at how students are able to perform complex tasks during these activities, while they often have difficulties understanding the concepts in regular lessons. This experience sparked a restlessness in her mind, as she still seeks to understand the difference in students' performance in these situations. Maria's active participation in these activities, even in a topic she was unfamiliar with, reinforced her belief that it is possible to overcome challenges and engage in effective collaborations with other teachers. The platform provided her with an environment to explore and share ideas with colleagues, encouraging her to extend her teaching practice and work together to achieve better educational outcomes.</p>
<p>How has his/her view about teacher collaboration changed?</p>	<p>The teacher's view of teacher collaboration changed significantly after her experience on the platform. Previously, her perspective was more theoretical, focused on performing tasks in isolation and with little joint exploration. She acknowledges that lack of time can contribute to this individualistic approach. However, her participation in the platform allowed her to experience true collaboration with her co-workers.</p> <p>At first, Maria may have questioned the relevance of the proposed activities and how they related to her mathematics subject. However, as she embarked on this collaborative journey she realized the potential and importance of working as a team. The experience provided a stimulating environment where she and her colleagues came together to face challenges and develop innovative solutions.</p> <p>She appreciated the opportunity to not only prepare tasks for the students but to work together as a team, facing challenges and overcoming limits.</p>
<p>What did he/she find most useful to support teacher collaboration?</p>	<p>According to this teacher, firstly, the trainings offered on the platform played a key role in encouraging collaboration. By being challenged to carry out tasks together, teachers were able to experience what it is like to work as a team, rather than just preparing tasks individually. This approach provided a transformative experience, making them feel like students and encouraging real collaboration among them. Through</p>

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	<p>these trainings, teachers had the opportunity to experience the importance and positive impact of collaboration in their pedagogical practice.</p> <p>In addition, the platform also offered online support, through the forum, for the exchange of ideas and discussions among participating teachers. This interaction between colleagues, even if virtually, was a valuable support to collaboration within each school. Through these exchanges, teachers were able to share experiences, explore ideas and deepen their understanding of the proposed tasks. The platform provided a space for a true learning community, which strengthened collaboration among participants and facilitated the implementation of the tasks in their respective schools.</p>
<p>How he/she finds the collaboration section of the platform (what is good, what is missing)?</p>	<p>The teacher recognises the value of the forum as a space to share ideas and read colleagues' perspectives. Although she did not engage deeply in the forum, she acknowledges that it is good to have the opportunity to see other teachers' contributions and views on certain aspects. The forum serves as a complement to face-to-face and online collaboration, providing additional perspective and the exchange of information.</p> <p>Although she read the other teachers' contributions on the forum, she emphasizes that the training sessions were more exciting and productive in terms of effective collaboration among participants.</p>
<p>Which suggestions for improvement did he/she make regarding the collaboration part?</p>	<p>The teacher did not make any suggestions for improvement for this section.</p>
<p>Any additional comments that he/she made about the platform:</p>	<p>Maria agrees that when teachers have access to validated and already worked on tasks, they are able to scale them appropriately to the available class time. She points out that, colleagues who are wary of implementing these tasks, may feel more enthusiastic to witness their application and success in their own classroom. However, she highlights the need for more time to work more consistently with this type of approach.</p> <p>Maria expresses her gratitude for the training received and acknowledges the merit of the organisers. She hopes that the training has reached many teachers and emphasises the importance of sharing the knowledge acquired with their colleagues at school. Maria also mentions the importance of having the tasks structured and validated, which facilitates the implementation by teachers, considering the time limitation and the fatigue faced in the school routine.</p>

Teacher/case nº	03
Age	44
Gender	Male
Pseudonym	Vasco
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Teacher Vasco, with 22 years of experience teaching physics and chemistry, shared valuable information about his career and prospects as an educator.</p> <p>Although there are not many teachers in his family, Vasco mentioned a cousin who also follows a teaching career. Regarding his inspirations, he mentions renowned entrepreneurs, such as Bill Gates, as references in the world of teaching due to their communication skills and the valuable information he draws from them for the act of teaching and learning.</p> <p>Having taught at this school for 4 years, the teacher describes it as organised, with a management concerned both with the conditions of the school and the welfare of the teachers. With about 250 teachers and 2500 students, this educational institution is a vibrant and dynamic environment where there is a rich interaction between educators and students. However, he points to the need to improve internal communication as an area for development.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Physics and Chemistry Teacher (School teacher)
Teaching experience/professional development of the teacher	Throughout his career, he has had the opportunity to work in eight different schools, gaining a wealth of experience and experiencing diverse educational contexts. In addition to his work in the classroom, he stood out as a national training coordinator in a European education and entrepreneurship project for two years. His participation in roles as a trainer and research coordinator also contributed to his trajectory as an educator.
Why he/she decided to become a teacher?	His motivation to become a teacher was influenced by two exceptional teachers he had in 12th grade, one in Chemistry and the other in Chemistry Labs.
Is he/she planning to change their position? If yes, which position and why?	Although he has had these enriching experiences, the teacher, at the current moment, does not plan to change positions in his career. He is committed to continue as a

Teacher/case nº	03
	teacher and focusing his efforts on imparting valuable knowledge and skills to his students.
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>The teacher identifies several obstacles and barriers that hinder the development of teachers' competences. According to him, one of the main obstacles is the teachers themselves, especially those who see training as an obligation for career progress. Many teachers undergo training only to fulfil the required number of hours, without considering the relevance or the real need to acquire new competences. This kind of mentality ends up limiting the possibility of significant changes in education.</p> <p>To overcome this obstacle, Vasco suggests that a selective competency be established for teachers, dedicating a few hours a week for mandatory training or collaboration. He believes that this could be incorporated into the teachers' routine, allowing for continuous and specific training. However, he points out that careful planning and efficient organisation would be required to define the specific competences for each school or group of schools.</p> <p>Another obstacle mentioned by the teacher is the lack of easy and free access to specific training. He highlights that many teachers are not willing to pay for training and that this should be an integral part of their career, with working hours dedicated exclusively to this purpose. He recognises, however, that lack of free time is a complication for many teachers, especially those with family responsibilities.</p> <p>Vasco expresses his own difficulty in reconciling professional and personal activities, considering his responsibilities with his two young children. He emphasizes that this situation is especially challenging when training occurs outside working hours.</p>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>According to Vasco, the main challenge for collaboration from his perspective is the lack of time. He believes that this issue could be addressed by implementing a system where teachers have a designated time slot during their working hours, such as an hour and a half per week, to be present at school and engage in collaborative tasks. He suggests that establishing such a structure would facilitate the development of a collaborative culture, which he feels is often lacking.</p> <p>The teacher also acknowledges the positive aspect of online collaboration, as it allows for increased opportunities to collaborate regardless of physical proximity. However, he points out that some colleagues prefer in-person collaboration and may not fully embrace online platforms. This preference for face-to-face interaction can further</p>

Teacher/case nº	03
	<p>complicate the challenge of finding common time slots for collaboration.</p> <p>The lack of shared time among teachers is the main obstacle to effective collaboration, as stated by Vasco. The absence of synchronized schedules can hinder collaboration, requiring extracurricular time commitments during lunch breaks or evenings, which may not always be feasible or desirable. As a result, collaboration often takes the form of individual efforts through email exchanges or other platforms, rather than true collective collaboration.</p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>Vasco identifies that the main challenges for teachers' career progression are related to limitations that currently exist in the education system. He mentions the existence of quotas and other restrictions imposed by the Ministry of Education, which can hinder teachers' professional progression. These limitations, implemented over the last two decades in Portugal, impact both on the career itself and on the economic aspect.</p> <p>The professor emphasises that these limitations are the main challenges for teachers' career progression in Portugal. He highlights the importance of considering these constraints when planning professional development and career progression, especially for those who decide to continue in the field of education and look for alternatives beyond traditional teaching.</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>For the teacher to continue to grow professionally, he highlights the importance of having access to continuous and specific training. He emphasises the need for this training to be easily accessible and oriented according to the school timetable of each grouping or school. In this way, there would be no excuses for lack of participation, and attendance to training activities during school hours would be ensured.</p> <p>Vasco suggests that continuous training should be structured in a way that takes advantage of school time, without adding additional bureaucracies to those already existing. He believes it would be possible to collaborate efficiently by building tools or projects that teachers themselves can use during the school year. In this way, time would be well used and the benefits of training would be more immediate and practical.</p> <p>He highlights the importance of having access to continuous and specific training. Furthermore, he emphasises the need for such training to be easily accessible and to be aligned with school schedules. This approach would allow a better use of school time and a greater practical applicability of the knowledge acquired.</p>

Teacher/case nº	03
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>The teacher reiterates the importance of having common times when all teachers are required to be available at school or online, not necessarily face-to-face. These periods of time could be divided into two different phases, during school hours, thus ensuring everyone's participation.</p> <p>According to the teacher, by establishing this obligation of presence or availability during these collaboration periods, it would be possible to promote greater interaction and cooperation among teachers. This approach would also ensure that the time factor would not be a barrier to collaboration, as everyone would be involved in these moments of interaction.</p>
<p>PLATFORM teach4life</p>	
<p>Describe the general experience using the 3C4life platform</p>	<p>Teacher Vasco reports that he had several interactions with the platform, exploring it on different occasions. Although he acknowledges that he did not have time for a more in-depth exploration, he highlights the most interesting and useful aspects he found. For him, sharing content and exploring it, together with the solutions implemented by other teachers, are the most relevant elements. He appreciates the possibility to check if his conclusions are aligned with those of other teachers, especially in the proposed challenges. Vasco values the sharing and challenges in various scientific areas, finding in them a source of inspiration to implement new challenges in his practice.</p>
<p>Which concrete suggestions of improvement did he/she have?</p>	<p>The teacher makes some suggestions to improve the platform based on his experience. Firstly, he mentions that the navigability on the platform can be improved to make the location of resources and functionalities more intuitive, especially for novice users. He suggests that a study be done to see if it is possible to improve the organisation and clarity of the interface.</p> <p>Furthermore, the teacher notes that when contributing to the discussion platform, it is not always immediately clear whether their response has been registered or not. He suggests that a confirmation system, such as an automatic email or message, be implemented to inform users that their contribution has been successfully received.</p>
<p>Which elements of the platform did he/she find most interesting/useful?</p>	<p>The teacher highlights that the sharing of content and the challenges proposed are the most interesting and useful elements of the platform for him. Through these shares, he can explore different approaches and solutions implemented by other teachers, which offers him a source of inspiration to improve his teaching practice. He appreciates the diversity of</p>

Teacher/case nº	03
	<p>scientific areas covered by the platform, which allows him to explore content in different fields of knowledge. These resources contribute to his continuous professional development and to the expansion of his pedagogical approach.</p>
Career:	
<p>In which way did the platform inspire/motivate him/her to advance their career as a teacher?</p>	<p>The platform has not had a direct impact in inspiring or motivating Professor Vasco to advance his career in a different way from where he is now. He acknowledges that the platform offers a comprehensive source of information and knowledge, which can be useful for those who wish to explore other professional areas or perspectives in the field of education. However, he emphasises that his vision and career choice remains the same and is not specifically influenced by the platform. He stresses that his decision not to pursue another career path is based on personal and professional reasons that go beyond the platform itself.</p>
<p>How he/she finds the career section of the platform (what is good, what is missing)?</p>	<p>The teacher considers that the session on careers on the platform offers a variety of elements that can guide him in understanding the different career profiles available to teachers. He stresses that the interviews are a positive aspect, as they provide useful information about the various career possibilities that can be explored.</p> <p>Especially for early career teachers, the platform can be helpful in presenting this information and broadening their view beyond the traditional idea of teaching. This can help them to consider different trajectories and to see the teaching career from a broader perspective.</p> <p>However, Professor Vasco also mentions that he already had some prior knowledge about career possibilities due to his own experiences in educational projects, such as entrepreneurship and other European projects. Therefore, although he was already aware of some opportunities, he recognises that the platform can be especially useful for those who do not yet have this knowledge.</p> <p>The teacher felt there was a lack of links or references to useful resources in the careers section, such as websites or platforms where teachers could find, for example, career opportunities and more specific information about the career paths available. He mentions that while it is interesting to know about different career options, in practice, many teachers may not be familiar with the steps needed to apply for these positions.</p>

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<p>Which suggestions for improvement he/she has regarding the career part?</p>	<p>Vasco suggests that by providing links to relevant websites or even opportunity announcements related to the different careers featured on the platform, teachers would have direct access to more detailed information about the requirements, application processes and available opportunities. This would make it easier for them to plan and actively search for other teaching career positions, as well as provide a more concrete overview of the available options.</p> <p>The professor suggests that including links to external resources and references to specific employment opportunities could be a valuable addition to the careers' session, helping faculty better understand the practical steps needed to pursue these career alternatives.</p> <p>He points out that many teachers may not be aware of these available vacancies and therefore may miss opportunities to explore other career paths.</p> <p>Making this information available in a clear and accessible way would allow teachers to explore other career options and make informed decisions based on their interests and the opportunities available. Moreover, such disclosure could also stimulate the active search for professional opportunities and promote mobility within teaching careers.</p>
<p>How has his/her view about the teachers' career changed in anyway due to the platform?</p>	<p>Vasco mentions that his view on the teacher's career did not change significantly after using the platform. He already had prior knowledge of the various possibilities and challenges related to collaboration, skills and strategic approaches in teaching</p>
<p>Competence</p>	
<p>In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?</p>	<p>The platform inspired and motivated Vasco to enhance his knowledge and skills, as well as providing inspiring resources for teaching. He highlighted the existence of tasks that develop not only teachers' competences, but also core competences for students. This approach based on investigation, research and development is seen as more productive for the development of students' skills compared to following a syllabus.</p> <p>The teacher mentioned that implementing the tasks proposed on the platform may require planning more lessons. This can be challenging within the limited number of lessons available, especially for school years when students are preparing for national exams. However, he stressed the importance of regularly implementing these types of tasks, even if it is necessary to reconcile them with the syllabus. These tasks sparked the teacher's interest in learning about</p>

Teacher/case nº	03
<p>How he/she finds the competence section of the platform (what is good, what is missing)?</p>	<p>different teaching approaches and taking advantage of the resources available on the platform.</p> <p>The teacher gave a positive assessment of the skills session on the platform. He pointed out that the section presents various examples of implementation in different scientific areas. Through the proposed tasks, solutions and guidance are provided on how these competencies can be developed and implemented.</p> <p>Vasco stressed that, by presenting suggestions for implementation and providing options for solutions, the platform helps teachers understand how to explore the competencies in a practical and concrete way. Vasco highlights that the platform features different pedagogical approaches, such as inquiry-based teaching, real-life contexts, and socio-scientific issues.</p> <p>What this teacher finds especially interesting in the platform is the way tasks are proposed, as they promote the development of competencies through problem questions. These questions are open-ended, not having a single answer, and they stimulate investigation, even in socio-scientific issues.</p> <p>He finds that the tasks stimulate students to explore, investigate and solve problems, which promotes critical thinking, creativity, problem-solving, and collaboration.</p>
<p>Which suggestions for improvement he/she has regarding the competence part?</p>	<p>He suggests that a concrete solution to improve the platform's skills session is to adapt the proposals to make them more accessible and suitable for basic education, in addition to secondary education. Vasco mentions that many of the proposals seem more aimed at secondary education due to their complexity, but it is important to adapt and simplify them for primary education.</p> <p>He highlights the importance of working on these competencies o still in the early years so that students develop autonomy in performing tasks and do not face difficulties when they reach secondary education.</p> <p>Vasco also suggests more design-based tasks, culminating in the construction of prototypes.</p>
<p>Collaboration</p>	
<p>In which way did the platform inspire/motivate him/her to for collaboration with other teachers?</p>	<p>Vasco considers that discussion forums may contribute to collaboration with other teachers, but only during active participation of teachers in a specific project. Collaboration and sharing of experiences among colleagues can be benefited through these forums.</p> <p>However, he also notes that lack of time is an obstacle for teachers to carry out spontaneously sharing. Vasco mentions</p>

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	that teachers may need to be prompted or encouraged to undertake such sharing, especially given the demands and time constraints they face in their professional practice.
How has his/her view about teacher collaboration changed?	The platform had no impact on how he views collaboration between teachers.
What did he/she find most useful to support teacher collaboration?	The teacher recognises the potential of the forum as a tool for collaboration between teachers. He highlights that the presentation of the tasks, along with the proposed explorations and solutions, provides an opportunity to share experiences and collaborate with other teachers. This exchange of information and solutions can be valuable in improving teachers' work and enriching the approach to the challenges in the classroom.
How he/she finds the collaboration section of the platform (what is good, what is missing)?	The teacher considers that the platform's collaboration forum can be useful, as long as it is well constructed and accessible in an easy way for teachers to collaborate. He emphasises that collaboration through the forums can be challenging. He mentions that without a clear indication or invitation to use the platform, he would probably not have got involved on his own, unless he was informed through a newsletter or on the initiative of the school's Principal. The same should be true for other teachers. Vasco points out that, if he knew a colleague interested in a specific area addressed by the platform, he could share this information and encourage the colleague to explore the platform's tasks. However, he highlights the need to have more initiatives, such as shared sessions or lectures on relevant topics, to promote collaboration and increase knowledge about the potential of this platform.
Which suggestions for improvement did he/she make regarding the collaboration part?	The teacher did not make any suggestions.
Any additional comments that he/she made about the platform:	No further comments

Teacher/case nº	04
Age	57

Teacher/case nº	04
Gender	Male
Pseudonym	André
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Teacher André reveals a deep motivation and clear goals regarding his career as a teacher. He mentions that his passion for teaching started during his degree in Electronic Engineering and Telecommunications, when he had the opportunity to provide vocational training to adults. This experience sparked in him a fascination with the power of teaching. Since then, he decided to follow the path of education and realized that learning and teaching are interdependent. He states, "Learning to teach. Teaching to learn".</p> <p>Although he did not specify who they were, in relation to his references in the world of teaching, André highlights one or two teachers with whom he had contact and who became living references for him.</p> <p>André's mother and wife are also teachers.</p> <p>As for the description of the school where he teaches, André describes it as having an environment with calm students, totalling 1200 students. However, he notes that the teaching staff is ageing, consisting of 180 teachers. He also mentions a recent change in school management, but that the current principal is a "pale image" of the previous director, who had been in post for over 30 years.</p> <p>In relation to Professor André's previous experiences, he reveals that he has been teaching for 28 years, and has been in the same school for 20 years. He has worked in a total of three schools throughout his career. In addition, he had the opportunity to take up management positions at three different times when he did not have a class to teach. These positions were in the Regional Directorate of the Centre in Aveiro, Nónio Século XXI, CRIE and ERTE in the Ministry of Education in Lisbon.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Currently working in Technology and Innovation Competence Centre of the Institute of Education – University of Lisbon
Teaching experience/professional development of the teacher	André has a vast experience in teaching, accumulating 28 years as a teacher. Throughout his career, he has worked in three different schools and taken on management positions at specific times. In addition, he has been a teacher trainer for over 25 years and is dedicated to working in the C2Ti

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	Competence Centre, where he is part of a solid and hardworking team. His trajectory reveals a professional committed to education and in constant search for improvement and professional development.
Why he/she decided to become a teacher?	He started his journey during his degree in Electronic Engineering and Telecommunications, when he discovered his passion for teaching while giving professional training to adults. Since then, his motivation has been to make teaching meaningful and active, seeking to learn to teach and teach to learn.
Is he/she planning to change their position? If yes, which position and why?	The teacher is not planning to change his position. He states that he really enjoys his work as a teacher trainer at the C2Ti Competence Centre, highlighting the robust and hardworking team he collaborates with.
What are the main barriers for teachers' competence development from his/her side?	For the teacher, the main barriers to the development of teachers' competencies are related to the bureaucratic burden imposed by schools. Although there is a theoretically well-structured scheme for continuous teacher training, with the need to comply with a specific number of training hours per year, in practice, many teachers enrol in these actions out of obligation, even though they already have a very intense daily workload. Currently, schools are overloaded with a large amount of bureaucracy and paperwork to be completed, which has increased over the years. André mentions that over his three decades of experience in teaching, he has observed this increase and realises that his colleagues, as well as himself, are increasingly burdened by this administrative load. This bureaucracy goes against the teachers' main aim, which is to teach and ensure that students are happy, learn efficiently and with quality.
What are the main challenges for teachers' collaboration from his/her side?	In André's opinion, the main challenges for collaboration among teachers are related to a national culture of reluctance to share knowledge and experiences. He stresses the importance of teachers getting out of their individual "four walls" and working in teams, participating in joint projects. However, he notes that there is a protectionist mentality, where some teachers fear that sharing their work could result in others taking advantage of or copying it. The teacher believes that this perspective is mistaken, as sharing benefits both the receiver and the giver, enriching the work of both. He emphasizes that it is necessary to overcome this mentality and believes that by sharing, everyone wins, creating a cycle of mutual enrichment. According to him, until we break this cycle of isolation, we will limit ourselves to the routine of the four walls of the classroom, making us less

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	interesting teachers. Therefore, the challenge lies in overcoming this mentality and valuing sharing as an opportunity for collective growth and improvement.
What are the main challenges for teachers' career development from his/her side?	According to the teacher André, there is a lack of strategic vision on the part of successive ministers of education, which has generated controversy and dissatisfaction. The measures adopted by each new minister often do not take into account the experience and knowledge accumulated by teachers throughout their careers. In addition, practical issues, such as career freezes, have also caused instability. Despite these challenges, the pride and dedication of Portuguese teachers toward their work are remarkable. Even facing salary difficulties and other problems, they continue to shine within the classroom, demonstrating an admirable characteristic when visiting schools.
What would he/she need to keep on growing professionally?	According to André, in order to continue to grow professionally, it would be necessary to have a career progression system based on teachers' real merit. Currently, teacher evaluation is based on criteria that, in his opinion, do not reflect reality. The parameters used in evaluation do not effectively measure a teacher's merit or quality as an educator. Instead, they emphasise bureaucratic factors such as the number of training hours undertaken. This teacher also mentions that the classes attended, which are used as performance indicators, end up not reflecting reality, because teachers tend to prepare better when they know they are being observed. What would be needed, according to this teacher, is a career progression scheme that really values teachers' merit. Although he does not know exactly how this could be implemented, he believes that it is possible to improve the current system.
What would he/she need to improve their collaboration with other teachers/colleagues?	To improve collaboration with other teachers and colleagues, teacher André highlights the importance of school coordination and school management. According to him, if the management team has a clear vision of what it wants to achieve, the school will be different. School coordination plays a fundamental role in creating a collaborative environment where teachers can work effectively as a team. However, the teacher points out that sometimes attempts at collaboration run into lack of support and fatigue, leading teachers to give up. He emphasized the importance of having coordination and management that support and encourage collaboration, providing the necessary support for teachers to work productively as a team. The teacher believes that even if it is a small group of teachers at the beginning, their enthusiasm and collaboration can infect others and generate

Teacher/case nº	04
	a positive effect, provided there is support and encouragement from the school coordination and direction.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	<p>In general, the teacher's experience using the platform was marked by some criticism regarding the navigability of the site. He considered that the organization of information in boxes that need to be opened and closed results in confusing and unintuitive navigation. According to him, this approach makes it difficult to quickly access the desired information, which goes against the principles of digital ergonomics. The professor believes that the website could be more efficient if the information were more accessible, avoiding the need for several clicks to obtain certain information.</p> <p>However, the professor highlighted positive aspects of the platform. He pointed out that the site is not extensive in terms of number of pages and it is mainly divided into three areas: careers, collaboration and competencies. In the careers area, the highlight is the eight interviews available. In the collaboration area, there is a forum, although he considers that it is a modest tool and could be more robust to stimulate a wider discussion. The most interesting and useful point of the site, in the teacher's opinion, is the skills section. In this section, the eighteen cases presented in the areas of Science, Engineering, Mathematics and Technology are considered the real richness of the site. He points out that these cases provide clues and practical examples that can be applied in the classroom with some adjustments, which is very valuable for teachers.</p>
Which concrete suggestions of improvement did he/she have?	He highlighted navigability issues and the need for a more robust forum tool to promote wider discussion.
Which elements of the platform did he/she find most interesting/useful?	<p>The first is the area of competences, where eighteen tasks are presented divided into the areas of Science, Engineering, Mathematics and Technology. He mentioned that these cases offer clues and examples that can be applied directly in the classroom, with some adjustments, which he considered very good.</p> <p>The second area mentioned is careers, which features eight interviews with professionals. The teacher found it curious that three of the interviewees are his colleagues. He mentioned that this area offers real career situations that can be interesting for platform users.</p>
Career:	

Teacher/case n°	04
<p>In which way did the platform inspire/motivate him/her to advance their career as a teacher?</p>	<p>From the teacher's account, the platform was not a direct source of inspiration for advancement in his own teaching career. He mentions that the interviews present in the careers area can be interesting for those who are at the beginning of their career, but points out that most of the positions are by indication and not by application for the position.</p>
<p>How he/she finds the career section of the platform (what is good, what is missing)?</p>	<p>One of the things he considers good is the format of the interviews, with short videos, about five minutes long. This avoids fatigue when watching and allows a concise presentation of what each interviewee does. In addition, he values the fact that the questions asked throughout the interviews are always the same for all interviewees, which creates a common thread and facilitates the comparative analysis of individual opinions.</p> <p>However, the teacher points out that the positions presented in the interviews are not necessarily of career progression or normal career paths. They are temporary positions, many of them by invitation, lasting one year and with the possibility of renewal. These invitations are selective and not all teachers have the opportunity many interesting teachers have these ephemeral and occasional positions depending to some extent on luck and there are many interesting teachers who have not had the opportunity to be invited to similar positions.</p>
<p>Which suggestions for improvement he/she has regarding the career part?</p>	<p>He missed presentations of positions that are more permanent and not linked to temporary invitations.</p> <p>For example, he mentions examples such as the sub-director of the Directorate-General of Education and that cooperating teacher, who mentors pre-services STEM teachers, are temporary and by invitation. The teacher highlights that it would be interesting to introduce other more permanent activities. He points out that finding these opportunities may not be easy. He mentions that he cannot remember specific positions at the moment but stresses the importance of including activities that offer more stable and long-lasting career opportunities.</p>
<p>How has his/her view about the teachers' career changed in anyway due to the platform?</p>	<p>The teacher realized the importance of conveying to colleagues who are starting their careers a realistic view of these posts, so that they do not create mistaken illusions.</p> <p>The teacher stresses that although the interviews are interesting to listen to, it is essential to make it clear to colleagues in training that many of these positions are by invitation and are temporary in nature. He emphasizes that even if they occupy these positions, they will still be teachers</p>

Teacher/case n°	04
	<p>and should not expect to make a career out of these specific posts.</p> <p>For the teacher, most of the positions presented are not desired or suitable to be held for long periods of time, due to fatigue and the preference to return to the classroom.</p> <p>André highlights the ephemeral nature of these temporary positions, mentioning that some positions last only a year, while others, such as the director of a training centre, can reach three years. He stresses that it is crucial to warn colleagues in training about this transitory characteristic of the positions, so that they do not create expectations.</p>
Competence	
<p>In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?</p>	<p>The teacher points out that even teachers with little experience can appreciate and directly use these competences or modify them as necessary. He sees room for improvement and the application of these competences in the subjects they can involve, which sparks his motivation. The fact that there are eighteen possibilities to create something practical in STEM education is already considered positive and inspiring by him.</p> <p>André points out that, although the wording of the competences could still be improved, they provide clues and starting points for starting and developing educational projects.</p>
<p>How he/she finds the competence section of the platform (what is good, what is missing)?</p>	<p>The competencies session of the platform aroused a positive perception in teacher André. He stresses the importance of teamwork and collaboration between teachers in STEM areas to implement effective educational projects. The platform provides clues about which teachers to bring together and which areas to trigger, facilitating the formation of the necessary teams.</p> <p>André also shares that the distinction between real-life context and inquiry-based teaching is not always clear to him. He emphasizes that, in practice, these two approaches often overlap, and, in the teacher's opinion, he does not find the separation so important.</p> <p>As for the quality of the tasks presented, teacher André expresses that, even if some of them are not complete or there may be flaws, this is not a serious problem. He values the presence of these tasks as a starting point that motivates teachers to extend and improve the case studies. He stresses that the most important thing is not to have perfect, detailed tasks, but to have a starting point that encourages teaching staff to improve, extend and adapt projects as needed.</p>

Teacher/case nº	04
	<p>He mentions specific examples of case studies, such as Sally Clark and Simpson's Paradox, which the teacher did not already know about and which sparked his interest, allowing him to explore and think about activities such as these.</p>
<p>Which suggestions for improvement he/she has regarding the competence part?</p>	<p>Teacher André suggests adding concrete lesson plans to the platform's skills session. He mentions that teachers are used to work with more targeted lesson plans, with details about how long they lasted, how they were developed in class, etc. This addition, according to the teacher, would allow teachers to have a more objective reference to adapt and implement the proposed case studies.</p> <p>The teacher highlights the importance of continuous feedback and feedback between schools and the platform to improve the competencies presented. He believes that, with this process of collaboration and improvement, the resources available on the platform could be improved with little effort.</p> <p>Furthermore, the teacher suggests a possible partnership with the schools where C2TI (Competence Centre in Technologies and Innovation) works within the Lisbon region. This collaboration could involve the schools developing the lesson plans with the students and sharing their experiences and resulting documents with the platform. In this way, the implementation of the case studies would be more objective and would have already been tested and improved by other Schools.</p>
<p>Collaboration</p>	
<p>In which way did the platform inspire/motivate him/her to for collaboration with other teachers?</p>	<p>The teacher stresses that collaboration is beneficial because everyone has something to show, teach and share. In the context of education, where he is inserted, collaboration is especially important since the educational structure often limits teachers within the four walls of the classroom. Participating in trainings, projects, and activities such as those offered by the platform allows teachers to engage beyond their daily routine, which is always positive.</p> <p>André recognises that collaboration can take different shapes and sizes but stresses the importance of making an extra effort to seek interaction with other colleagues. By stepping out of their comfort zone and engaging in collaborative activities, teachers can exchange experiences, share knowledge, and learn from each other. This interaction outside the traditional classroom environment contributes to professional development and enriches teaching practice.</p>

Teacher/case nº	04
<p>How has his/her view about teacher collaboration changed?</p>	<p>The teacher highlights the importance of collaboration between disciplines and the search for activities that involve the transversality of content. However, he recognizes that the lack of time and the absence of a community of practice can hinder collaboration with other teachers.</p> <p>Teacher André shares an example of how he promotes collaboration in his ICT subject by searching for content in other subjects, such as Portuguese. He involves students in creating a database of audio poems, encouraging them to read and record the poems. Although this activity is carried out transversally, he regrets the fact that he does not have time to meet with the Portuguese teacher to share these collaborative practices.</p> <p>The teacher recognizes the importance of collaboration between teachers and believes that the community of practice is essential for the exchange of ideas, sharing of resources and improvement of pedagogical practice. He expresses the desire to have more time and opportunities for collaboration and values the exchange of knowledge and experiences with other teaching colleagues.</p>
<p>What did he/she find most useful to support teacher collaboration?</p>	<p>The teacher believes that the tasks proposed in the platform are a central point to promote discussion and collaboration. He suggests creating discussions around each case study, encouraging teachers to choose a few cases to analyse, discuss improvements and share their experiences. This initiative could be carried out through the forum available on the platform, in order to stimulate interaction and exchange of ideas among participants.</p> <p>He highlights that, in the context of his group work, his colleagues applied the tasks with their classes and collected the forms, while he was responsible for processing the data. This division of tasks and sharing of results between group members demonstrate how the platform can facilitate collaboration.</p> <p>The teacher says that during the face-to-face sessions and in the final group work, he highlights that even in smaller groups, like his, with only three members, there is always something to share and learn from each other. He emphasizes the importance of these opportunities for sharing and learning among teachers.</p>
<p>How he/she finds the collaboration section of the platform (what is good, what is missing)?</p>	<p>The professor considers that the forum available on the platform is a poor tool in technical terms and that it ended up being hidden, which contributed to the lack of engagement of the participants.</p> <p>He mentions that the forum was not used to proactively create discussions, but only when asked to do so. This</p>

Teacher/case nº	04
	resulted in an empty experience for all involved, as forums are often powerful spaces for sharing and exchanging ideas.
Which suggestions for improvement did he/she make regarding the collaboration part?	The professor suggests that a more robust and complete forum software could be used, instead of the functionality built into the current platform. He believes that there are several options available in the market, with more advanced forum management resources, which could be explored.
Any additional comments that he/she made about the platform:	<p>The teacher has some additional suggestions for improving the platform:</p> <p><i>Improve navigation:</i> The teacher considers the navigation confusing and suggests that the information is more visible, avoiding unnecessary clicks. He highlights the importance of clear and direct navigation, facilitating the reading and exposition of information.</p> <p><i>Organize the videos:</i> The teacher mentions that some videos are repeated and out of place, which can cause confusion. He suggests creating a separate page with all the videos, accompanied by a brief explanatory caption about each one. This would allow easier navigation and the possibility of indexing the videos according to the pedagogical approach.</p> <p><i>Add lesson plans:</i> The teacher proposes to create scripts or lesson plans related to each of the eighteen cases presented. This addition of practical content would be very useful for teachers, providing direction and facilitating the implementation of proposed activities.</p>

Teacher/case nº	05
Age	43
Gender	Female
Pseudonym	Teresa
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Teresa has worked in 10 schools throughout her 20-year career as a teacher. She highlighted the importance of making students enjoy being in their classes, actively participating, feeling comfortable asking questions, and developing a genuine interest in science. These goals reflect her commitment to creating a welcoming, stimulating, and inspiring learning environment.</p> <p>About her references and inspirations in the teaching world, the teacher mentioned her 8th grade physical-chemistry teacher and her internship advisor. These figures played a significant role in shaping her as an educator, positively influencing her and serving as role models.</p>

Teacher/case nº	05
	<p>The teacher teaches in a cluster of about 150 teachers and approximately 900 students, composed of several primary schools, a kindergarten, a basic school and a secondary school. She pointed out that the secondary school has laboratories for the subjects of Natural Sciences and Physical Chemistry, in addition to ample green spaces, where students can enjoy a pleasant environment, including the presence of chickens, roosters and a pond with ducks. However, she noted that the physical structure of the school is degraded and needs work. The basic school, according to her description, does not have green spaces or many spaces for students to play.</p>
<p>General Information regarding teaching: career and professional development and collaboration</p>	
Current position, school	Physics and Chemistry Teacher
Teaching experience/professional development of the teacher	<p>As for Teresa's previous experiences, she revealed that throughout her 20-year career as a teacher, she had the opportunity to assume different positions, as coordinator of a disciplinary group and, currently, as a cooperating teacher. Despite her influence in the school community, she mentioned that she has yet to attend any General Council meetings where her list has garnered the most votes.</p>
Why he/she decided to become a teacher?	<p>This decision goes back to her childhood, where she used to play at being a teacher, even auditioning her mother.</p>
Is he/she planning to change their position? If yes, which position and why?	<p>The teacher expressed the possibility of becoming a mentor or teacher trainer and, eventually, assuming responsibilities in the school management. Although she has not yet thought this matter through in detail, she leaves open the prospect of furthering her career and contributing even more to education.</p>
What are the main barriers for teachers' competence development from his/her side?	<p>One of the barriers mentioned by the teacher is the lack of adequate conditions in schools. Often, schools do not provide the necessary conditions for teachers to expand their skills.</p> <p>Teresa also mentions the quality of training available. The teacher expresses concern that many training courses are predominantly theoretical, not properly deepening the subjects addressed. She emphasizes the importance of more practical and applicable trainings that offer concrete examples and direct teachers on where to find relevant resources.</p>

Teacher/case nº	05
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>From this teacher's perspective, the challenges for collaboration between teachers are related to the openness and availability of colleagues, as well as the lack of adequate time for this collaboration.</p> <p>Not all colleagues have the same willingness to collaborate and there is not enough time in the work schedule to do collaborative work. They often have to devote their personal time to collaborating with colleagues.</p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>The main challenges for the progression of teachers' careers include several aspects. First, there is the initial challenge of entering the teaching career. Once inside the career, there are challenges related to the tiers and the number of quotas available to advance. The number of teachers who can progress is linked to the evaluation the school receives, which can limit progress due to quantitative constraints.</p> <p>Another challenge mentioned is teacher evaluation. Professor Teresa expresses concern about the fact that they are evaluated by colleagues who do not have specific training in evaluation. She points out that often the evaluation is subjective and done through a comparison between the observed classes and the evaluators' classes.</p> <p>In addition, the obligation to undertake training to progress in the career is also identified as a challenge. Teresa mentions that a large part of this training is paid and takes place outside working hours, during non-school hours. She points out that, in some schools, teachers need to request authorization to participate in these training courses, and these requests are not always approved.</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>The teacher highlights the need for more practical and applicable training, which offer knowledge and resources directly relevant to pedagogical practice. In addition, she points out that these training courses should be made available free of charge, so that teachers do not have to bear the financial costs.</p> <p>Another important point mentioned is the availability of time within working hours to participate in training. Teresa emphasizes that training that takes place on weekends or after working hours steals time that could be dedicated to work at school, family and personal time.</p>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>According to the teacher, to improve collaboration with other teachers/colleagues, it would be necessary to promote a culture of openness to working together, in which colleagues are willing to collaborate and share, and to ensure that there is time in the work schedule, avoiding the need to use the teachers' personal time.</p>

Teacher/case nº	05
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	The teacher considered the platform interesting and useful. She highlighted the ease of finding activities related to the specific subjects desired, such as engineering and chemistry. This allowed her to quickly select activities according to her preferences. However, she mentioned that at times she felt a bit confused when navigating the platform. She suggests making important information more obvious, perhaps using clearer, more intuitive names on the collaboration, competency, and careers tabs.
Which concrete suggestions of improvement did he/she have?	The teacher suggested making the information within the platform more explicit and easily accessible. She highlighted the need to improve the organization of tabs, so that the content available in each one of them is more noticeable. In addition, she mentioned the importance of facilitating the search for activities, making the names more explicit and intuitive.
Which elements of the platform did he/she find most interesting/useful?	Teresa considered the activities available on the platform to be an interesting and useful resource. She valued the possibility of choosing activities according to her interests and preferences. In addition, she mentioned that the interviews available on the platform were considered interesting.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	First, she mentions that the training offered by the Institute provides a significant range of activities. This is important to her, as it allows her to have a variety of resources to apply in her classes. Some activities are applied as they are presented, while others are adapted according to her needs and preferences. This diversity of activities and methodologies helps her to change and improve her pedagogical practices in the classroom. In addition, the teacher points out that the platform goes beyond the activities themselves. She mentions the importance of the framework offered in each activity, that is, the contextualization and guidance on how to explore and apply each resource. This complementary aspect of the platform is considered interesting and valuable for Teresa, as it broadens her understanding of the possibilities for using the activities in her classes.

Teacher/case nº	05
How he/she finds the career section of the platform (what is good, what is missing)?	<p>Teresa points out that the elements that most helped her to know and explore the different professional profiles were the interview videos. According to her, having access to people's personal experiences through these interviews was more effective than just reading information.</p> <p>By watching the interviews, the teacher was able to get to know and better understand professional profiles that she might not be familiar with. She specifically mentions the mentor profile, which she considers new, and the assessment coordination profile, which she was unaware of. These professional profiles arose her interest and curiosity, providing a broader view of career possibilities in the field of education.</p>
Which suggestions for improvement he/she has regarding the career part?	The teacher did not make any suggestions for improvement regarding the careers' section.
How has his/her view about the teachers' career changed in anyway due to the platform?	<p>The experience with the platform broadened this teacher's understanding of career possibilities in the educational area, showing her that there are additional tasks and roles that can be performed. However, she also points out that this possibility is subject to certain requirements and conditions.</p> <p>The teacher recognizes that to carry out these parallel tasks, such as school management, education or administration, it is necessary to have adequate conditions. This implies taking specific training in these areas, which requires a significant personal investment, both in terms of time and financial resources. In addition, even with the skills acquired through these training courses, it is not always possible to obtain opportunities to perform these additional tasks.</p>
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	Being able to find activities that are aligned with the specific topics she is teaching increases her enthusiasm, as she knows she will have relevant and engaging resources to engage students. Ease of access to relevant activities contributes to her motivation as a teacher, as she can quickly choose resources that complement and enrich the content covered in her classes.
How he/she finds the competence section of the platform (what is good, what is missing)?	According to this teacher, one of the particularly interesting elements of the platform for acquiring useful and relevant knowledge for the teaching profession is the activity exploration section. She points out that the platform is not limited to just providing the activities, but also offers examples of how to explore and apply them in the classroom.

Teacher/case nº	05
	<p>In this section, three main topics are presented: exploration, solution and implementation. Through these guidelines, teachers can understand different ways of approaching the proposed activities and adapt them according to their needs and the characteristics of their students.</p> <p>The teacher points out that this approach is extremely useful, especially for teachers who have difficulties in implementing tasks that are more complex or different than what they are used to. The explanations and introductions provided by the platform help simplify the process of applying the activities, allowing teachers to gain confidence in their use.</p> <p>By having access to practical examples and clear guidelines, teachers can overcome the initial fear of trying different approaches and ensure that students understand the objectives and expectations of the proposed activities.</p>
Which suggestions for improvement he/she has regarding the competence part?	The teacher did not make any suggestions for improvement regarding competencies' section.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	The platform inspired and motivated this teacher to collaborate with other teachers by allowing her to access each teacher's responses in the forum. She points out that this possibility of accessing the contributions of colleagues enhances collaboration, as it is not limited to the individual response of each professor. Through this interaction, she feels that she can learn from the experiences, opinions and practices of other teachers, as if they were gathered in a face-to-face training, but in written form.
How has his/her view about teacher collaboration changed?	The teacher's view of collaboration has not changed significantly. She mentions that, in terms of the vision of the collaboration, there was no significant change provided by the platform. However, she highlights the difference between collaboration in the context of online training, where teachers have access to each other's answers, and collaboration in everyday life, where teachers do not use this type of collaborative tool very much.
What did he/she find most useful to support teacher collaboration?	Teresa considers that access to other teachers' responses on the forum is the most useful aspect to support collaboration between them. She mentions that reading the testimonies and sharing opinions facilitates the possibility of adaptation and consensus, or at least greater acceptance and better

Teacher/case nº	05
	results in most decisions. She sees value in sharing experiences and learning from other teachers' experiences.
How he/she finds the collaboration section of the platform (what is good, what is missing)?	This teacher found the platform forum an interesting and useful tool. She points out that this form of collaboration, through a written forum, can even be better than meeting face-to-face with other teachers. She mentions that in face-to-face meetings, conflicts sometimes arise due to different personalities and ideas, but through the forum, reading testimonies and sharing opinions makes it easier to promote changes and adaptations, facilitating the acceptance of different perspectives.
Which suggestions for improvement did he/she make regarding the collaboration part?	Teresa suggests that, in order to improve collaboration in the forum, it would be important to further promote interaction between teachers. She points out that the platform already allows the reading of testimonies and the exchange of opinions, but suggests looking for ways to increase the participation and engagement of teachers in the forum, encouraging them to share their experiences and contribute more frequently. This greater participation can result in better consensus and more positive results in collaboration between teachers.
Any additional comments that he/she made about the platform:	No further comments.

Reporting on key issues: evidence collected and responses to research questions

Portugal

Partners are encouraged to **draw on evidence to support their case study report** based on the selected cases. Evidence may come from different sources (e.g., teachers' written responses to open questions about the 3C4life platform; quotations from the 5 teachers' interview or Matomo analytics related to the use of the platform in any partner country). Quotations showing teachers' responses are highly appreciated to illustrate any of the key points.

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>Which elements of the platform did teachers find the most interesting or useful to know about different career pathways related to the teacher profession?</p>	<p>Teachers mentioned the interviews videos as a commonly valued element of the platform, as they provide personal and interactive insight into the teachers' professional paths. They highlighted that the videos provide a more interactive and personal experience, allowing viewers to hear the experiences and testimonies of the professionals in question. In addition, they mentioned that the videos have an adequate length, avoiding fatigue during the viewing process.</p> <p>However, there were some differences in emphases, with some teachers emphasizing the importance of the interviews themselves, and the section as information to teachers who are starting their careers. Others highlight the importance of broadening career options and others</p>	<p>"It was the videos. That is, the interviews being there with people's experience and them giving personal testimony." (Teacher Teresa's interview)</p> <p>"Each interview has a text with the job location, the duties and therefore the requirements and skills needed." (Teacher João's interview)</p> <p>"Especially for those starting out in their career, if they are not aware of this various information, I think the</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	mention practical aspects such as the requirements and competences associated with different roles.	platform is helpful" (Teacher Vasco's interview)
<p>In which way did the platform help teachers to explore different career pathways related to the teacher profession (mentoring, school management, educational administration...)?</p>	<p>All teachers express some degree of knowledge about possible career paths beyond the classroom.</p> <p>Teachers João, Maria and Teresa mention that the platform introduced them to some career options or related positions of which they had no prior knowledge.</p> <p>Teachers Vasco and André already had some prior knowledge about possible career paths and mention personal experiences in projects related to these areas.</p> <p>Teacher Maria highlights her interest in exploring a career as a cooperating teacher and mentoring internships for new teachers.</p> <p>Teacher Teresa shows surprise regarding some career paths mentioned in the platform, such as mentoring and assessment coordination.</p> <p>Teacher Vasco reports that, despite having prior knowledge about the possibilities of career paths outside the classroom, the platform reinforced and complemented his understanding of these options.</p>	<p>"I liked seeing about the cooperating teacher career. I think it was something I haven't done yet, (...) but it's something I'd still like to do soon because this is inside the classroom, isn't it?" (Teacher Maria's interview)</p> <p>"(...) some I didn't know. The mentoring one I think is something more or less recent. (...) assessment coordination, I didn't know either." (Teacher Teresa's interview)</p> <p>"(...) I've already been in projects, in an entrepreneurship education project for two years and I've already been in European projects too, and so I already knew something about what we could have at the level of professional paths" (Teacher Vasco's interview)</p>
<p>Are there any aspects of the 3c4life platform that can be improved in terms of encouraging teachers to explore</p>	<p>Teachers agree that the platform can be enhanced to encourage teachers to explore different careers related to the teaching profession.</p>	<p>"(...) I think it would be important for this information to be available and for people to be more aware that, once in</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>different career pathways related to the teacher profession?</p>	<p>Teacher Vasco emphasizes the importance of having information about available positions, so that teachers can make informed decisions. He mentions that many people may think that a certain route is interesting, but give up when they know the requirements or conditions needed.</p> <p>Teacher André highlights the lack of more permanent positions in the platform. He mentions examples of temporary positions held by colleagues and expresses the wish to find more permanent activities for teachers. He questions himself whether it is easy to find such opportunities within Education in Portugal. He would also like to know if, in other countries, there are more permanent options besides the temporary ones by invitation.</p>	<p>a while, there are vacancies for certain things for which they can apply. (...) there should be one or more places where these vacancies can be seen. (...) there are people who may even think that a certain path is interesting, but then when they see the requirements of what is needed and the conditions that are necessary, they give up and still find it interesting to apply.” (Teacher Vasco’s interview)</p> <p>“What I missed maybe were other posts that eventually exist. Right now, I'm not remembering any. It is not easy to find, maybe something more permanent that is not ephemeral. (...) We have to find these people. I don't know if the scheme of the Ministry of Education, in this country, is that simple, if in other Ministries of Education, in other countries, there are more permanent jobs, than those temporary ones by invitation.” (Teacher André’s interview)</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>In which way did the platform motivate teachers?</p>	<p>All teachers recognize that the platform offers structured and validated activities that help enrich the curriculum and explore different methodologies in the classroom.</p> <p>Teachers appreciate the diversity of themes and tasks available on the platform, which allows them to select activities related to the subjects in focus in their classes.</p> <p>The platform is seen as a source of motivation for teachers, as it offers a variety of challenges and skills that can be developed by both them and their students. Teachers recognize that the platform broadens the view of the teaching profession, showing that it is not only limited to the classroom but offers other career possibilities.</p>	<p>"(...) the way the activities are placed by themes is interesting, because if there is a subject that we are working on in class, that has more focus on one of those areas, we can quickly go there and choose activities. So, the platform is very helpful here" (Teacher Teresa's interview)</p> <p>"(...) the tasks, the way they are structured, we can see how they are in line with the curriculum, how we are going to do the activity, what we need, the time we have." (Teacher João's interview)</p> <p>"(...) when I saw the videos I thought 'look here's something I haven't done yet and I could do'." (Teacher Maria's interview)</p>
<p>How views about the teaching career have changed as a consequence of the platform use?</p>	<p>Teachers highlight that the platform has expanded perspectives and shown new possibilities within the teaching career. It sparks interest in exploring different career paths and promotes motivation. However, concerns are also mentioned regarding the difficulty of taking on</p>	<p>"(...) The platform 'opens our eyes'. Of course, it won't convince us of anything, I don't think that's the goal either, but it effectively shows us that the profession of "Teacher" is not exhausted within the four walls, with a</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>additional tasks, emotional attachment to students and the ephemerality of certain administrative positions.</p> <p>Teachers recognise that the platform has broadened the horizon of possibilities within the teaching profession. They note that the platform allows teachers to take on diverse projects and act in different contexts beyond the four walls of the classroom. The platform also exposes examples of happy and engaged teachers in their new roles, which sparks interest and motivation to explore different career paths.</p>	<p>class of students in front of us (...)". (Teacher João's interview)</p> <p>"Yes, it has changed. It gives us a notion of the type of functions that we can perform in addition, that we can play in parallel, but this also requires a lot of things, that is, it's not only about wanting to do it. You have to know the conditions (...)". (Teacher Teresa's interview)</p> <p>"(...) at a certain point in my life, I pondered one of these paths, right? But I wouldn't like to, effectively, leave the students (...)" (Teacher Maria's interview)</p>
<p>Which elements/resources of the platform are specially interesting to develop particular skills and competences relevant for the teaching profession nowadays?</p>	<p>All teachers agree that the resources available on the platform are important and useful for the development of teaching activities. They mention the existence of ready-to-use activities covering a variety of themes and working methodologies.</p> <p>Teachers highlight the practicality and ease of implementation of the platform's activities. They appreciate the structure and the guidance provided, which helps them understand how to apply the activities in the classroom.</p>	<p>"(...) here with the creation of the tasks already ready, we take a task and we have the STEM task already done, so I think they are well achieved. (...) the scope of the themes themselves, I think it's interesting because it leads us to be able to think about other tasks, but based on these." (Teacher João's interview)</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>Teachers agree that the platform contributes to the development of skills and competences relevant to current teaching practice. They mention the importance of exploring and implementing activities, which promotes teacher's confidence in implementing more different approaches.</p> <p>Teachers recognize that the challenges proposed by the platform stimulate approaches such as inquiry-based teaching, the use of real-life contexts, and the discussion of socio-scientific issues. They value open-ended problems that promote inquiry and exploration, allowing students to work with complex issues and multiple solutions.</p> <p>Each teacher highlights specific elements of the platform based on their area of expertise. Some mention the importance of mathematics and how the platform helps to relate it to other subjects. Others value the scientific and technological approaches within the resources. Teachers mention the importance of the platform presenting already validated tasks with practical examples of how to explore and implement the activities.</p>	<p>(...) we have different contents there, we understand what we are going to do and how to apply it; it helps us develop skills to then develop the task. It's not just a task that comes ready (...), besides showing us the method of how we should do it, they allow us to relate how we want and always adapt it to our reality. (Teacher Maria's interview)</p> <p>"Thinking about the different approaches: inquiry-based teaching, real-life contexts and socio-scientific issues (...), What I see is the way tasks are proposed, starting from a problem-issue, stimulates the development of the competences that are currently intended, both for the students themselves and for the teachers." (Teacher Vasco's interview)</p> <p>"Reading the implementation part, we managed to know how to do it (...), it's very well explained. (...) The way in which they are organised and explained helps the teacher a lot, (...) we can read and understand perfectly what we are supposed to do with the students and be able to talk a little bit</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>Are there any aspects of the 3c4life platform that can be improved in terms of supporting the development of useful teaching competences? Do teachers miss any relevant aspect in this respect?</p>	<p>Teachers agree that teachers themselves can be involved in content creation and that additional resources would be welcomed. However, differences are noted regarding the focus on different levels of education, the importance of communication and learner autonomy, and the suggestion of collaboration with schools to include concrete lesson plans.</p> <p>Both João and André highlight the importance of teachers themselves actively participating in the creation and validation of learning scenarios on the platform. They emphasize that allowing teachers to be producers of these scenarios will contribute to the quality of the content and its pedagogical relevance.</p> <p>Maria and André agree that more resources could be added to the platform. Although Maria is satisfied with the existing resources, she believes that the addition of more resources would be beneficial. André shares this view and considers that even incomplete resources can be useful to inspire teachers to extend and improve the proposed activities.</p> <p>Vasco highlights that, in his opinion, the platform is more geared towards secondary education, with more complex activities. He suggests adapting the proposals to make them more accessible to primary education, emphasizing the importance of developing STEM skills from the early school years.</p>	<p>more about that task and fit it into our reality." (Teacher Teresa's interview)</p> <p>"(...) the possibility of the teacher creating these learning scenarios (...) having some resources validated by an educational institution, or even between peers, I don't know, with the teachers who were part of the project, for example, it can be created a group of teachers who want to and so can continue with the project and actually feed the platform with more resources." (Teacher João's interview)</p> <p>"The more resources, the better. I loved the resources. (...) nothing was missing, but they can always add!" (Teacher Maria's interview)</p> <p>"The most important thing is that the task is there, because it gives that impulse and allows the teacher to take it and expand it, if necessary. If it is incomplete, there is no problem (...), because it already gives the initial impulse for the teacher to take it, together with his team, and improve,</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>André suggests a partnership with schools, proposing that lesson plans can be developed by teachers and be added to the platform. He sees value in the objectivity of these plans, as they allow other teachers to obtain practical information about the implementation and results of the activities.</p>	<p>expand, modify, make it happen." (Teacher André's interview)</p> <p>"(...) in my opinion, (the tasks) are more geared towards secondary school, because they are more complex. But we can adapt them and make them simpler also for primary school (...)." (Teacher Vasco's interview)</p>
<p>How did the platform support teacher collaboration? Why? Which elements/features of the platform support the building and development of communities of practice? Which elements were best appreciated by teachers in this respect?</p>	<p>Teachers generally indicated that the platform provided opportunities for collaboration. Although the use of the forum was limited and some difficulties were pointed out, the possibility of accessing colleagues' experiences was valued. The training sessions also played an important role in promoting collaboration among teachers.</p> <p>All teachers recognize the importance of collaboration between colleagues. They mention that having access to other teachers' responses and contributions on the platform was valuable for learning from each other's experiences and getting different perspectives. They appreciated the opportunity to share ideas and difficulties, thus creating a learning community. Teachers also highlight the importance of the training sessions to promote collaboration among teachers. These sessions allowed them to work together, exchange ideas and explore tasks collaboratively.</p>	<p>"By having access to the answers that all colleagues posted there (on the forum), we were also able to have an insight into the difficulties that other teachers felt, their opinion, their testimony, and their practice. I think this helps, it's as if we were all together and each one tells his or her experience. Only, instead of just saying it, it's all written down. And we can read it. And learn a little bit from each other's experiences." (Teacher Teresa's interview)</p> <p>"We were able to work collaboratively with the help of the platform. But the forum? I was there reading what the other teachers wrote, but, I confess</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>Teresa highlights that having access to other teachers' responses and experiences on the platform was valuable in gaining a broader view of the difficulties faced and their opinions.</p> <p>João, Maria, and André mention that the use of the forum as a collaborative tool was limited. João states that the collaboration occurred more within the project than in the forum, while Maria highlights that the tasks and resources part were more exciting for her than the forum. André expresses his disappointment with the forum tool, considering it poor and underused.</p> <p>Vasco highlights the difficulty of establishing communities of practice on the platform, unless there is specific dissemination or sharing of experiences between colleagues.</p>	<p>that, for me, it was more exciting the part of the tasks. Sometimes I thought: 'ah, let's see what that teacher said about "this and that" and that's it. In fact, more than the written forum, it was really our training sessions, where we were working with each other.' (Teacher Maria's interview)</p> <p>"I think it's very difficult to collaborate through these types of forums, if there isn't something specific like, for example, these training sessions. For example, if I didn't know about the project and if I didn't participate in the training sessions, it would be very difficult for me to go to the platform, unless I was told or that I saw it or received a newsletter that came from the Board or something like that. That way I wouldn't collaborate, for sure (...), unless there were one-hour shared session, I don't know, once a month or something like that... (...), maybe that would be a way of collaborate and make known the potential of the platform." (Teacher Vasco's interview)</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>How teachers' view about teacher collaboration have changed as a consequence of the use of the platform?</p>	<p>Teachers showed a generally positive perception of the collaboration promoted by the platform, recognizing its importance and valuing not only the practical activities but also the training sessions offered. They mentioned that the use of the platform allowed a greater exchange of experiences, access to testimonies and shared solutions, which reinforced the relevance of collaboration as an essential competence for teaching practice. They perceived the platform as a means to support and promote collaboration among teachers. However, there are differences in individual experiences and perceptions, with emphasis on the change of perspective mentioned by Maria. She reports a significant change in her view of collaboration. She mentions that, initially, she did not see the connection between the platform and collaboration, but by participating in the proposed activities, she realized the importance of team collaboration and how it affected her view on teacher collaboration. She points out that the platform enabled true collaboration with peers and a teamwork experience that made her reflect on student outcomes in STEM activities and how this differs from traditional teaching.</p>	<p>"We have access to each other's responses, on the platform, where we weren't all at the same time, we weren't together. We just had access to the testimonies of what each of us put there. In terms of the vision of the collaboration, it hasn't changed very." (Teacher Teresa's interview)</p> <p>"(...) it changed my view on the collaboration part, because there we were really collaborating with colleagues, not only preparing a task for the students. We were in a team. "Let's do this!" So, I think it was very interesting, I really enjoyed the training sessions. It made me take on the task and work as a team. It reminded me when I was a student. (...)and that really changed my view. We had been doing some STEM activities for three years and I always had this question: Why don't students (in traditional maths classes) do well? But then, when we do these types of activities, they do them?" (Teacher Maria's interview)</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>Do teachers miss anything in the platform to support teachers' collaboration?</p> <p>Do teachers have any concrete suggestion to improve the platform design in terms of promoting teacher collaboration?</p>	<p>João highlights the importance of fostering the community of teachers on the platform. He mentions that the continuity of the forum, organized by themes, is interesting to allow research and organization of information. He suggests that small, short-term challenges and simple themes can be explored to create a learning scenario.</p> <p>André mentions that the forum on the platform is limited and suggests the use of more robust external software for managing forums.</p>	<p>“The continuity of the platform with the organization by themes is interesting, as it allows research with organized subjects. What turns out to be very useful and facilitating for me is that, as a teacher, I can see the contributions of colleagues” (Teacher João’s interview)</p> <p>“We needed to use other software for the forum. It can't be the current one because it's too limited. We should use a more robust forum management platform.” (Teacher André’s interview)</p>
<p>Is there any other relevant aspect you would like to discuss in relation to the 3C4life platform?</p>	<p>In general, teachers recognize the quality of the platform and the training sessions offered. Other aspects of improvement suggested by teachers focus mainly on the navigability of the platform and the addition of resources, such as lesson plan guides.</p> <ul style="list-style-type: none"> - Improve the navigability of the platform by avoiding unnecessary clicks and organizing resources in a more accessible way. - Reorganize the videos on a separate page, with proper descriptions and categorization, making it easier to navigate and index. 	<p>“I really liked this training and I think we must recognize your merit. It was really good. I hope it reached many teachers. And now we also have this mission to replicate this to our colleagues at our school” (Teacher Maria’s interview)</p> <p>“In terms of the platform... is to improve navigation, from my point of view it is confusing. Because things are a little hidden. The boxes that appear at the bottom, which require me to click,</p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<ul style="list-style-type: none"> - Add lesson plan guides for each of the proposed tasks, providing additional support for teachers in implementing activities. 	<p>would only be of interest if that click were to open very long texts. As the texts are not completed, they can be immediately visible, avoiding clicks, causing more reading, more exposure.” (Teacher Andre’s interview)</p> <p>“The videos (from the competencies session) are repeated and in the wrong place. Therefore, those initial videos that appear end up to be confusing. (...) I created a page with the videos, with a small accompanying caption about what each video is made of, and taking all the videos out of where they were.” (Teacher Andre’s interview)</p> <p>“It would be interesting to create lesson plan scripts that would be added to each of the eighteen tasks. It would be spectacular, it's an evolution of content.” (Teacher Andre’s interview)</p>


3C4Life
Career Guidance, Collaborative Practice
and Competence Development

Partners' case study report

SPAIN

Description of how the 3C4LIFE platform has been adapted and promoted in Spain

According to the project description, any partner should report about 5 cases to provide an in-sight into how the platform has been used by different teachers in any country. We assume that the implementation of the platform (how it was promoted and adapted) is similar for all the cases reported by any partner. If you consider that your responses to the table below will vary depending on the individual case being reported you should provide a different table for any case.

Please, respond to the following questions to illustrate how the platform has been promoted and adapted in your country:

Questions	Responses of partners from: <i>SPAIN</i>
<p>1. When and how was the teach4life platform promoted in your country and how successful was this from your point of view?</p>	<p>It was promoted from July 2022 till late September. The dissemination could be considered successful since we received 400 applications to join the teacher professional development program that included the use of the platform.</p>
<p>2. What kind of adaptations have you made to the 3C4Life platform for its use in your national context? Why?</p>	<p>It was translated into Spanish and linked to the platform used for the STEM teacher centre in Valencia (CEFIRE-CTEM), to offer teacher professional development and support when using the platform.</p>
<p>3. Have you added new/different materials/examples? If your answer is yes, Which ones and in which way are they</p>	<p>All the resources of the platform were translated and adapted to the Spanish context and we made new videos from Spanish teachers, who have taken up different professional pathways illustrating those pathways and how they have grown professionally along them.</p>

Questions	Responses of partners from: <i>SPAIN</i>
different from the international version? Describe them.	Embedded within the platform used for the STEM teacher centre in Valencia (CEFIRE-CTEM) linked to the teach4life platform, we have added explanatory presentations, guidelines and examples of teaching and learning sequences explicitly linked to the Spanish school curriculum, but following the pedagogical approaches offered by the teach4life platform.
<p>4. Have you offered the 3C4Life platform in the context of an official teacher professional development course? If your response is yes, explain the characteristics of the course (number of maximum participants, number of hours, existence or not of specific support and following up by teacher educators, etc...).</p>	<p>The 3c4life platform was offered in the context of an official Teacher Professional Development (TPD) course accredited by the STEM teacher centre (CEFIRE-CTEM) and recognised by the corresponding educational government.</p> <p>The TPD included 60 h of training and many others of following up reflection and transfer to practice, from September 2022 till March 2023.</p>
<p>5. How have you encouraged and monitored the use of the platform by participants?</p>	<p>We planned specific TPD activities intended at exploring particular resources and try to link them to teachers' motivations and needs. For instance, we encouraged teachers to look at the videos showing different professional pathways and to record and share new videos showing teacher trajectories, while they provided feedback on others' videos.</p> <p>We also encouraged them to analyse particular resources of the platform for competence development, and to adapt them to their own practice and the current Spanish school curriculum.</p>
<p>6. Indicate key dates when you performed actions to promote the use of the platform (social media posts, platform</p>	<p>Launching the teach4life platform use on a national level (19 September 2022) and the participation in 3C4LIFE evaluation (fulfilment of pre-questionnaires).</p> <p>Supporting teachers to discover different career pathways and to exchange interests and motivations (3 October 2022).</p> <p>Stimulating teachers' use the platform resources for the development of relevant STEM competences (7 November 2022).</p>

Questions	Responses of partners from: <i>SPAIN</i>
workshops, strategic meetings...)	<p>Highlighting links between the teach4life resources and the new Spanish curriculum and supporting teachers' communication and collaboration (12/12/2022).</p> <p>Encouraging teachers to participate in the mid-term 3C4LIFE evaluation (fulfilment of intermediate questionnaires) 09/01/2023.</p> <p>Stimulating teachers' collaboration, the exchange of resources and experiences and building communities of practice supported by 3C4LIFE: Meeting planned for (13/03/2023).</p> <p>Encouraging teachers to participate in the final 3C4LIFE evaluation (fulfilment of post questionnaires and participation in 3C4LIFE case studies). Planned for late March.</p>
<p>7. Have you suggested particular paths when exploring and using the 3C4Life platform? If your response is yes, explain which ones and why.</p>	<p>We planned a sequential exploration and used of the platform, according to the dates and TPD sessions previously described:</p> <ul style="list-style-type: none"> ● Launching the teach4life platform use on a national level (19 September 2022) and the participation in 3C4LIFE evaluation (fulfilment of pre-questionnaires). ● Supporting teachers to discover different career pathways and to exchange interests and motivations (3 October 2022). ● Stimulating teachers' use the platform resources for the development of relevant STEM competences (7 November 2022). ● Highlighting links between the teach4life resources and the new Spanish curriculum and supporting teachers' communication and collaboration (12/12/2022). ● Encouraging teachers to participate in the mid-term 3C4LIFE evaluation (fulfilment of intermediate questionnaires) 09/01/2023. ● Stimulating teachers' collaboration, the exchange of resources and experiences and building communities of practice supported by 3C4LIFE: Meeting planned for (13/03/2023). ● Encouraging teachers to participate in the final 3C4LIFE evaluation (fulfilment of post questionnaires and participation in 3C4LIFE case studies). Planned for late March.
<p>8. What measures were taken to initiate collaboration in the forum? How successful were they and why?</p>	<p>Approximately once a month we planned activities that encouraged teachers to exchange reflections and experiences through the national forums. Almost all participants in the TPD course have used the forums, what could be considered successful somehow.</p>

Questions	Responses of partners from: <i>SPAIN</i>
	The international forum was not so much used due to language barriers.
9. How have you ensured the number of evaluation questionnaires before using the platform, 3 months after and 6 months after starting to use the 3C4Life platform?	In relation to the pre-questionnaire, we distributed it with an explanatory video, before launching the platform. For the other 2 questionnaires, we planned particular sessions in which we combined specific TPD support and guidelines, with time to fill in the questionnaires, 3 months and 6 months after launching the platform.
10. How have you selected participants for the 3C4Life case studies?	We followed the normal criteria used by the STEM teacher professional development centre when selecting teachers for a TPD course, when applications are over the positions offered (years of teaching experiences, innovation and training merits, etc.).

Description of individual cases in Spain

Include all the relevant information to characterise the teachers participating in your national case studies. **Fill one form for each of the 5 teachers** participating in your national case studies. Any partner should provide **5 forms** corresponding to any of the cases (any form will be considered a case).

You can use your own knowledge about the teacher and all the information you collected about him/her before and during the interview (see the templates provided for these purposes).

Case number:

Country:

Teacher/case nº 1	
Age	59
Gender	female
Pseudonym	Mara

Teacher/case n° 1	
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Her main purpose as a teacher is to feel happy with the teaching processes she carries out. She is currently focused on passing the oppositions and in the near future, she sees herself devoting more time to her students and their ongoing training.</p> <p>She has no close or relatives references as teachers.</p> <p>Her school is special because exclusively Roma students attend it, with a high risk of social exclusion. The center project focuses on student behaviour. There are 30 teachers and around 150 students.</p> <p>Until now, she has not had management responsibilities throughout her teaching career</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher
Teaching experience/professional development of the teacher	She has been working as a teacher for 3 years and has been in 3 different centers.
Why did he/she decide to become a teacher?	She decided to be a teacher because she likes to teach and help others.
Is he/she planning to change their position? If yes, which position and why?	Her intention is to continue teaching, although she is currently on an internship and intends to obtain a stable position in teaching.
What are the main barriers for teachers' competence development from his/her side?	She thinks that the main barriers for her competence development is the professional instability, but passing the opposition is not easy.
What are the main challenges for teachers' collaboration from his/her side?	She thinks that working with teachers of the same specialty is not easy being an interim. If the group of teachers are civil servants, she thinks it is easier. This answer is related to the unstable position when teachers are not civil servants; in that case, teachers move from different schools frequently and they cannot collaborate in a fruitful way with their colleagues.
What are the main challenges for teachers' career development from his/her side?	Being able to explain from the level of previous knowledge of the students and being able to motivate them to work and appreciate the effort.

Teacher/case nº 1	
What would he/she need to keep on growing professionally?	Approve the opposition. I need more free time to study.
What would he/she need to improve their collaboration with other teachers/colleagues?	Approve the opposition. But the bad thing is that the areas are usually given by interim teachers, which implies a lot of responsibility because the new interns do not have experience in areas or specialties other than ours.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	Her overall experience with the platform has been limited. She has contacted the different sections, and mainly appreciates the learning situations because they are elements that she can use on a day-to-day basis in her classrooms.
Which concrete suggestions of improvement did he/she have?	Related with the course, Mara thinks that there should have been more effective feedback on the tasks. <i>This response is directly associated with the TPD course offered along with the platform.</i> She suggests that platforms should improve teacher communication in a way that learning should be increased.
Which elements of the platform did he/she find most interesting/useful?	She found the competence materials and examples of learning situations the most interesting elements of the platform.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	She has learned to develop learning situations. It seems that the platform has not helped her to approach her professional career, only her professional development as a teacher; mostly, she focuses on learning situations.
How does he/she find the career section of the platform (what is good, what is missing)?	Good: The different forums of the platform. She suggests the correction of the tasks in order to improve the course. <i>This response is directly associated with the TPD course offered along with the platform.</i>
Which suggestions for improvement he/she has regarding the career part?	NA
How has his/her view about the teachers' career changed	No, her goal is to be a teacher and to have direct contact with students because she feels comfortable. The platform has not motivated her to explore different professional options

Teacher/case nº 1	
in anyway due to the platform?	
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	Through the platform, she has known the professional life of other teachers who have been recycled from other sectors, like her case.
How does he/she find the competence section of the platform (what is good, what is missing)?	The examples of learning situations have been especially motivating elements for her.
Which suggestions for improvement he/she has regarding the competence part?	NA
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	The platform has inspired Mara in how to share ideas with other teachers and how to manage different ways of working to enrich themselves among teachers.
How has his/her view about teacher collaboration changed?	The course has not changed her vision of teacher collaboration
What did he/she find most useful to support teacher collaboration?	She found that the forums have been the most useful part of the platform in terms of collaboration. In general, she has seen that the sharing of tasks among teachers has been facilitated.
How does he/she find the collaboration section of the platform (what is good, what is missing)?	Although teacher collaboration has been facilitated, it should have been encouraged more frequently and through different tools.
Which suggestions for improvement did he/she make regarding the collaboration part?	About the course: To present a joint activity with other teachers. <i>Perhaps this can be extrapolated to the platform: include more instruments to facilitate collaboration between teachers</i>

Teacher/case nº 1	
Any additional comments that he/she made about the platform:	NA

Teacher/case nº 2	
Age	51
Gender	Male
Pseudonym	Fran
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>His main objective is the scientific literacy of young people. He has relatives as teaching referents, his mother was a teacher. Besides, he claims to be inspired by teachers and scientific education professionals such as Jordi Domenech or Neus Sanmartí.</p> <p>The school where he teaches is very large and it is located in a town with a medium socio-economic context. The center has a large number of new students each academic year. There are about 170 teachers and about 1600 students</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher
Teaching experience/professional development of the teacher	<p>He has been working as a teacher for 20 years, in 15 different centers. Currently he has been working for 13 years in the same educational center.</p> <p>Throughout these years, he has had different responsibilities: counselling at the teacher-training center, head of studies, center management, didactic research training, head of department and coordinator of the mediation team.</p>
Why he/she decided to become a teacher?	<p>He decided to be a teacher because he wanted to teach how to interpret the world around from a scientific point of view. He really liked the subject of physics and chemistry in high school, he found it very interesting, and he thought that all people should have knowledge of these disciplines</p>
Is he/she planning to change their position? If yes, which position and why?	<p>This year he applied for the "Acceso a cátedras" call, without success.</p>

Teacher/case nº 2	
What are the main barriers for teachers' competence development from his/her side?	In his opinion, the main barriers to the competence development of teachers is the lack of training and legislative changes.
What are the main challenges for teachers' collaboration from his/her side?	With regard to collaboration, he thinks that teachers need time to do that.
What are the main challenges for teachers' career development from his/her side?	The lack of training in didactics and the little response, in general, from the students.
What would he/she need to keep on growing professionally?	He recognizes to need more specific information to keep on growing professionally
What would he/she need to improve their collaboration with other teachers/colleagues?	Time is very important in order to improve his collaboration with other colleagues. <i>In general, Spanish teachers are involved in several legislative changes in the last few years, which affects time to be involved in other activities like collaboration with other teachers, attention to students in an optimal way, etc.</i>
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	In general, Fran has taken advantage of the platform in learning situations. However, due to his previous experience in various academic positions, the career section has been less helpful to him.
Which concrete suggestions of improvement did he/she have?	He suggests improving the access to participation forums and increasing the number of learning situations.
Which elements of the platform did he/she find most interesting/useful?	He found learning situations and the element most useful.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	He indicates that the platform did not generate great levels of motivation or inspiration about his career as a teacher.

Teacher/case nº 2	
How does he/she find the career section of the platform (what is good, what is missing)?	From his point of view, videos of teachers explaining their professional career are the elements of the platform that he has found most interesting to know what other teachers are doing and explore different professional options
Which suggestions for improvement he/she has regarding the career part?	NA
How has his/her view about the teachers' career changed in anyway due to the platform?	His view about teachers' careers has not been changed due to the platform. For the moment, he will continue teaching, he does not consider changes.
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	Fran indicates that the platform has not motivated him personally to a great extent in order to advance knowledge or inspiration for teaching.
How does he/she find the competence section of the platform (what is good, what is missing)?	He thinks that the most useful elements are the Physics and chemistry learning situations, since they are directly related to his subject.
Which suggestions for improvement he/she has regarding the competence part?	He suggests creating and sharing more examples of learning situations for each subject.
Collaboration	
In which way did the platform inspire/motivate him/her to collaborate with other teachers?	Mainly, he thinks that collaboration can benefit teachers in learning different types of teaching practices in the classroom and for creating and sharing resources. On the platform, more than collaboration is needed, in order to carry out a real exchange of opinions in the communication forums. He believes that collaboration has not been favoured.
How has his/her view about teacher collaboration changed?	His vision of collaboration between teachers has not undergone any change.

Teacher/case nº 2	
What did he/she find most useful to support teacher collaboration?	NA
How he/she finds the collaboration section of the platform (what is good, what is missing)?	NA
Which suggestions for improvement did he/she make regarding the collaboration part?	NA
Any additional comments that he/she made about the platform:	NA

Teacher/case nº 3	
Age	57
Gender	Female
Pseudonym	Clara
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Her purpose as a teacher is to teach knowledge, make it useful, and learn from students at the same time (“they possess qualities that are lost over time”). She doesn't have many professional goals, she is passionate and enjoys creating materials for her students and teaching. However, any task involving paperwork horrifies her. There are no teachers in her family, but she cites some colleagues whom she admires as referents, those who know how to engage students.</p> <p>The socio-economic context of the school where she teaches (during 12 years out of 26 of teaching career) is medium-low, and at the moment, the overall atmosphere among the teaching staff is good. However, in relation to the administration, not everyone is satisfied. Considering students' performance, it depends on the group and the individual people (“smaller classes can be lively and sometimes do not allow for normal class development”).</p> <p>Regarding the mission/vision of the school, the management team is about to retire, they do not promote any activity that deviates from the norm, they do not support new projects, although they do allow them if insisted upon. There is no motivation to work in integrated areas. However, there is an Innovation Project in the school carried out by two teachers</p>

Teacher/case nº 3	
	from different teaching departments (technology and music) and a new subject in 1st year of high school called "Research Project" (Clara is the teacher) in which students must elaborate a bibliographic review on a topic of their choice, as they are students in the humanities or mixed track. There are about 50-60 teachers and 450 students in the school. Clara has also worked in that school as the Head of Department, Secondary Coordinator, and Coordinator of the Book Bank.
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher
Teaching experience/professional development of the teacher	She has worked for 4 years in private academies (3 academies) and 26 years in public schools (8 different schools). She has been at the current school for 12 years teaching science subjects. She has acted as Secondary Coordinator (1 year) and a Coordinator of the Book Bank (2 years), collaborating with the latter for 4 more years.
Why he/she decided to become a teacher?	She started by giving private lessons in all science subjects (since at that time there wasn't much professional demand, but she dreamed of research), and she fell in love with teaching.
Is he/she planning to change their position? If yes, which position and why?	This academic year, she applied for the "Acceso a cátedras" call, which does not contemplate changes in the number of teaching hours but slightly increases the salary.
What are the main barriers for teachers' competence development from his/her side?	The lack of training in the face of constant changes in legislation. The constant increase in paperwork. Increase in unmotivated students. Lack of coherence among teaching teams, which exacerbates the lack of discipline. New technologies. Constant app development makes you feel outdated. Facing a changing staff every year. It may hinder the development of long-term projects. Fear of parental figures due to possible complaints when changing teaching methods and content.
What are the main challenges for teachers' collaboration from his/her side?	She believes that most teachers do not want to collaborate, and this worsens with the age of the teacher, although she considers herself an exception. During this course, she has collaborated with a colleague from the Practical Field of the PDC3, and she considers it as a very rewarding and enriching experience. She cannot find words to describe it. She thinks that the younger generations are much more collaborative. While the previous culture promotes individualism, working with materials from publishers that segregate subjects and not creating your own materials ("That is paid for, it's not my

Teacher/case nº 3	
	job," one of her colleagues from the department said when discussing the possibility of working with our own notes).
What are the main challenges for teachers' career development from his/her side?	The increase in bureaucracy for any procedure. Changes in educational laws that even inspectors do not understand. Teachers with a vocational calling need teaching hour; those who aspire to leadership roles trade teaching hours for paperwork hours. Joining CEFIRE and teaching teachers is not as rewarding as teaching secondary students.
What would he/she need to keep on growing professionally?	She thinks it is difficult. In her personal case, as a lover of teaching practice, she would seek coherence and collaboration among teaching teams and a reduction in bureaucracy for different procedures. She believes that having a "Happiness Coordinator" figure within schools could be useful to motivate teams.
What would he/she need to improve their collaboration with other teachers/colleagues?	In a joking tone, she indicates that she would need to belong to another teaching department or move to another school. She worked for six years in the "Mil Viviendas" [a specific location], and collaboration was essential to survive. Now, in a school with a higher socio-economic level, individualism and complacency prevail. She believes that training should be mandatory, simply so that other colleagues can learn about different ways of working and appreciate the changes in methodology she has experienced.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	NA
Which concrete suggestions of improvement did he/she have?	She sees no flaws in the platform but indicates that there are figures within a school who have responsibilities and no financial compensation, such as Secondary Coordinators, Equality Coordinators, Book Bank Coordinators... (minor figures that are not even mentioned), however they certainly do not change the professional trajectory; they are collaborative positions. The platform may include these individual positions with responsibilities and no financial compensation, for example, within another section for "Collaboration within the school". Other than that, she thinks the platform is perfect.
Which elements of the platform did he/she find most interesting/useful?	She found the competence materials (learning situations) very interesting; they have taught her how to create learning situations regardless of their format.
Career:	
In which way did the platform inspire/motivate him/her to	In creating materials on her own and without financial compensation (in a joking tone she declared that, "one day I will publish something"). She is not interested in other career

Teacher/case nº 3	
advance their career as a teacher?	paths apart from teaching. The only thing she would be interested in is designing interdisciplinary teaching materials; she thinks they are necessary at the moment.
How he/she finds the career section of the platform (what is good, what is missing)?	She thinks that all the testimonials are interesting. Exploring new professional options, she is not interested in those involving more bureaucracy than what she already has as Head of Department, PDC3 Tutor or collaborator in the Book Bank. She perceived that as very demanding, considering that she also designs her own materials, and declared that “The day doesn't have enough hours for me to fill out more paperwork or online documents.”
Which suggestions for improvement he/she has regarding the career part?	Including individual positions with responsibilities and no financial compensation.
How has his/her view about the teachers' career changed in anyway due to the platform?	She already knew about the positions shown and her perspective on the different professional options she can consider has not changed.
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	A lot; that has fuelled her to never stop creating materials. She has found all the competence materials (learning situations) very inspiring, “when learning is interdisciplinary, it's wonderful”. Every material was valuable, as they use different materials and designs that open her eyes to other knowledge and strategies.
How he/she finds the competence section of the platform (what is good, what is missing)?	In each learning situation (competence materials), she finds different materials, knowledge, competencies, or strategies to design other learning situations.
Which suggestions for improvement he/she has regarding the competence part?	She would like some competence materials to have feedback...difficulties observed during the implementation and possible solutions to those difficulties. The platform should include feedback in the competence materials and a reconsideration of those aspects for improvement.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	Seeing how learning situations are implemented in other schools has stimulated her creativity, and that always promotes her collaborative side. By showing what teachers publish, they are already collaborating with other teachers they don't even know. <i>This response is directly associated with the TPD course offered along with the platform.</i>
How has his/her view about teacher collaboration changed?	It has reinforced the positive view of collaboration that she already had and has given her a boost to try out competence materials in her school with colleagues who share her teaching vision. <i>This response is directly associated with the TPD course offered along with the platform.</i>

Teacher/case nº 3	
What did he/she find most useful to support teacher collaboration?	Everything is useful, especially in schools where interdisciplinary work is done at certain levels (not the case in her school).
How he/she finds the collaboration section of the platform (what is good, what is missing)?	She misses feedback to competence materials. She also misses an explanation of the advantages of collaboration when designing learning situations and interdisciplinary materials.
Which suggestions for improvement did he/she make regarding the collaboration part?	A project could be created for materials in the Scientific Field and Practical Field of the PDC (school project and teaching programming). She thinks that, usually, materials are designed to develop high abilities and not for students with difficulties. She declared to be confused and to feel lost in the context of the new educational law. The LOMLOE [Spanish education law] does not determine anything about this (it includes all the knowledge that any 3rd or 4th grade student in secondary school should study in the three subjects that make up the fields)...with the aggravation that in the subject of Biology and Geology in the Valencian Community, they have changed the knowledge from 1st grade to 3rd grade and vice versa; which does not correspond to the national territory (each school has chosen to adhere to the national Royal Decree or the regional Decree, or to implement a two-year moratorium in 3rd grade). Therefore, depending on the school, different knowledge is being taught and she thinks it is a complete mess.
Any additional comments that he/she made about the platform:	The course and the platform have motivated her a lot, although her vision of professional development does not encourage a change in her career. She is willing to share all the teaching materials she has created.

Teacher/case nº 4	
Age	53
Gender	Female
Pseudonym	MCG
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	Her first goal is to find her own style within the system, that is, to find the point where all the rules and demands of the education system can fit with her way of understanding teaching. Her husband is a teacher, but she does not indicate professional role models. This is her second year at the current school (she has four years of teaching experience). Most of the families in that school have a medium-low socio-economic level, with temporary jobs and great geographic mobility. Throughout the year, there are many new student enrolments and withdrawals. Additionally, it is a school with a high percentage of immigrants from at least 4 different

Teacher/case n° 4	
	nationalities. The teaching staff consists of 50 people, and there are around 500 students in the school.
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher
Teaching experience/professional development of the teacher	She has worked as a teacher for 4 school years in 4 different schools, so she considers being in the starting point of her teaching career. This is her second year at the current school. MCG has not had different responsibilities throughout her teaching career apart from teaching.
Why he/she decided to become a teacher?	She is not a vocational teacher; it happened as an alternative option after the construction crisis (the sector she was working in).
Is he/she planning to change their position? If yes, which position and why?	No
What are the main barriers for teachers' competence development from his/her side?	The responsibility to improve skills lies with each teacher, and she believes that educational institutions should guarantee proper teacher training with courses for the entire staff, especially when there is a change in legislation. If there is no training for all teachers after a change, it is like changing all the machinery in a factory but not teaching the workers how to use it. The challenge for teachers is that they have to continuously train outside of their working hours and sometimes travel from their workplace.
What are the main challenges for teachers' collaboration from his/her side?	Lack of time within the school working hours.
What are the main challenges for teachers' career development from his/her side?	Great flexibility and adaptability are needed. She thinks that one must always be prepared for change, both in terms of colleagues, as many positions are filled by temporary teachers, and in terms of management teams and legislation.
What would he/she need to keep on growing professionally?	Training should be provided by educational institutions and within the working hours. When there is a change in legislation, training should come first, and then the implementation of the changes, not the other way around.
What would he/she need to improve their collaboration with other teachers/colleagues?	Allocate time and space for collaboration among teachers within the weekly schedule.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	NA

Teacher/case nº 4	
Which concrete suggestions of improvement did he/she have?	She finds the structure of the forum a bit confusing.
Which elements of the platform did he/she find most interesting/useful?	The competence section, where there is practical material for classes.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	This section has not received much attention because at the moment she is not interested in other teaching paths besides classroom teaching.
How he/she finds the career section of the platform (what is good, what is missing)?	NA
Which suggestions for improvement he/she has regarding the career part?	NA
How has his/her view about the teachers' career changed in anyway due to the platform?	NA
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	The platform has not changed her motivation.
How he/she finds the competence section of the platform (what is good, what is missing)?	The competence section has been very interesting to her because it provides practical ideas for classes.
Which suggestions for improvement he/she has regarding the competence part?	She missed a Geology section, just like there is for Biology, Mathematics, or Technology. She has the feeling that, in the Valencian Community, Geology is somewhat discriminated against in the teaching world.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	Exchanging experiences is always very inspiring and enriching. By collaborating with other teachers, one can receive new ideas, expand or improve his/her work with the contribution of other teachers, and even distribute the work and optimize time.
How has his/her view about teacher collaboration changed?	There hasn't been any change.
What did he/she find most useful to support teacher collaboration?	During the course, participants were able to share their work and exchange opinions, but since the feedback was random, it could happen that some teachers' learning situations were not commented on by anyone. She thinks it would have been

Teacher/case nº 4	
	better to form small work groups so that feedback would be guaranteed in all cases (<i>this response is directly associated with the TPD course offered along with the platform</i>).
How he/she finds the collaboration section of the platform (what is good, what is missing)?	Through the forum, opinions can be exchanged, but she thinks it is somewhat limited, and as she mentioned before, the structure is not clear to her.
Which suggestions for improvement did he/she make regarding the collaboration part?	Small group work during the course (<i>this response is directly associated with the TPD course offered along with the platform</i>) and a better-structured platform forum. It could be interesting to have a section where each teacher can upload a complete learning situation and the rest of the teachers can expand or improve it in some way.
Any additional comments that he/she made about the platform:	NA

Teacher/case nº 5	
Age	42
Gender	Female
Pseudonym	Anna
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	Her main professional objective is to help students value themselves and strive to become what they desire for their future. She aims to open their minds and eyes to new opportunities and highlight the value of rural areas, so that talent can return to the small towns. No one in her family is a teacher and she does not mention any professional role models. She has 16 years of teaching experience (in 1 private school and 5 public schools). She has been teaching at her current school for 7 years. The school is a large institute considering it is located in a rural area where agriculture prevails over other industries and services. The overall atmosphere is good. Sometimes there are clashes and different opinions, but that's where the magic of this profession lies – in the end, everyone is working towards the same goal. Its teaching team consists of 85 teachers and there are around 600 students there.
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher advisor
Teaching experience/professional development of the teacher	She has 16 years of teaching experience (in 1 private school and in 5 public schools). She has been teaching at her current school for 7 years. Additionally, she currently works as an advisor at a teacher training centre (CEFIRE) and previously served as a training coordinator at her school.

Teacher/case nº 5	
Age	42
Gender	Female
Why he/she decided to become a teacher?	She decided to become a teacher to explore another career path.
Is he/she planning to change their position? If yes, which position and why?	She is working as teacher advisor and, next year, she will return to her teaching role. However, due to the structure of her school, she is not ruling out the possibility of joining the school's management team.
What are the main barriers for teachers' competence development from his/her side?	Balancing the teaching responsibilities with the growing bureaucracy. Classroom size ratios to effectively allocate time. Finding a balance between dedicating time to teaching and continuing professional development.
What are the main challenges for teachers' collaboration from his/her side?	Coordinating with teachers from different educational levels is difficult due to scheduling conflicts. Achieving consensus on a suitable time frame for collaboration would be a significant achievement.
What are the main challenges for teachers' career development from his/her side?	The increasing bureaucracy that suffocates teachers and takes away time for professional growth. Also, the constant changes in educational laws. The feeling of not receiving sufficient support from educational administrations.
What would he/she need to keep on growing professionally?	To value training opportunities that contribute to personal and professional development as part of their work. These opportunities should be recognized as part of our regular schedule.
What would he/she need to improve their collaboration with other teachers/colleagues?	More time and dedicated support. Although she believes to already collaborate to a considerable extent with her colleagues.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	NA
Which concrete suggestions of improvement did he/she have?	Not only considering core subjects like mathematics, technology, physics, chemistry, or biology, but also including subjects directly related to digital competency. In her case, as an IT specialist, she has found only one experience on the website to explore this topic (password security). Reconsidering computer science not only as a cross-curricular subject but also acknowledging its importance at the same level as other subjects. Additionally, the discussion/forum section could have an open version without requiring a login, as well as a private version. Furthermore, a specific section for courses related to teach4life would be beneficial.
Which elements of the platform did he/she find most interesting/useful?	Having a place with examples, guides, and information related to STEM subjects has been extremely helpful.
Career:	

Teacher/case nº 5	
Age	42
Gender	Female
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	The platform offers a variety of options and provides insights into different possibilities.
How he/she finds the career section of the platform (what is good, what is missing)?	The platform has provided informative content, although she was already familiar with many professional options. However, taking the leap into these areas can be a significant step in some cases.
Which suggestions for improvement he/she has regarding the career part?	She would only add more testimonials and examples from different educational administrations and other countries. She would expand the resources to include information on procedures and calls for applications.
How has his/her view about the teachers' career changed in anyway due to the platform?	It has provided her with more information and introduced her to some new perspectives that she had not previously considered. However, she discovered it late as she has already embarked on a career as an advisor over the past two years and, next year, she is also considering taking part in the management team of my school apart from continuing teaching there.
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	Having a collaborative space and the presentation of activities by other teachers motivates her to continue searching, investigating, and trying new things. <i>This response is directly associated with the TPD course offered along with the platform.</i>
How he/she finds the competence section of the platform (what is good, what is missing)?	The collaboration section and the competencies section, within the limitations of her specialization. In the latter, all the subsections - controversies, ABI, and real contexts - are completely interesting and necessary. She has found the "Real contexts" useful because they involve finding solutions to real problems. She believes this is interesting for both teachers and students. It brings STEM subjects closer to them, as they see the real-world impact of what is taught.
Which suggestions for improvement he/she has regarding the competence part?	Considering the LOMLOE (Organic Law for the Improvement of Education, Spanish context), she feel that learning situations were lacking. The platform should be reviewed for the navigation or the website menu, although she can't say for certain how it could be improved.
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	She hasn't explored it extensively, so she can't provide a definitive answer.

Teacher/case nº 5	
Age	42
Gender	Female
How has his/her view about teacher collaboration changed?	It has improved her perception. If she was already convinced that teachers needed to collaborate more, now she is even more convinced.
What did he/she find most useful to support teacher collaboration?	Having places where teachers can share our materials and work. The Moodle platform used for the course has been beneficial. It would be great to incorporate it into your platform and add an additional feature with an internal Moodle. <i>This response is directly associated with the TPD course offered along with the platform.</i>
How he/she finds the collaboration section of the platform (what is good, what is missing)?	She hasn't explored it extensively, so she can't provide a definitive answer.
Which suggestions for improvement did he/she make regarding the collaboration part?	Consider implementing different levels of forums or even adding an internal Moodle.
Any additional comments that he/she made about the platform:	Collaboration offers numerous benefits, although not everything is suitable for everyone. When it comes to their teaching work, collaboration in research, sharing materials and experiences enriches teachers. She feels lucky to come from a group that collaborates a lot because they have always had to create our own materials. In the field of IT, teachers are often willing to share and help each other whenever possible.

Spain

Partners are encouraged to **draw on evidence to support their case study report** based on the selected cases. Evidence may come from different sources (e.g., teachers’ written responses to open questions about the 3C4life platform; quotations from the 5 teachers’ interview or Matomo analytics related to the use of the platform in any partner country). Quotations showing teachers’ responses are highly appreciated to illustrate any of the key points.

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
Which elements of the platform did teachers find the most interesting or useful to know about different career pathways related to the teacher profession?	Videos showing real examples of different career pathways that can be followed for teacher professional development.	Case 2. <i>"Videos of teachers explaining their professional career."</i> Case 3. <i>"The testimony examples are all interesting."</i> Case 5. <i>"The truth is that it is quite varied and reveals the different options."</i>
In which way did the platform help teachers to explore different career pathways related to the teacher profession (mentoring, school management, educational administration...)?	They value videos as examples of different career options however it is not so clear to what extent they had an impact on teachers and some most of them already knew about those career paths. It is curious that in one case it seems that the platform helped teachers to consider the career pathway as designer and creator of teaching-learning materials but this was not due to the career section of the platform but to the competence material section. Another teacher is considering getting involved in the management team of the school although it is not clear the role of the platform (in any) in this thinking.	Case 2. <i>"[The career section of the platform] He has not introduced me to anything new."</i> Case 3. <i>"In the creation of materials in my own title and without financial compensation, one day I will publish something (hahaha)."</i> Case 5. <i>"In an informative way, although I have to admit that most of them already knew enough of the professional options."</i>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>Are there any aspects of the 3c4life platform that can be improved in terms of encouraging teachers to explore different career pathways related to the teacher profession?</p>	<p>It is suggested to show other positions as those that are based in collaboration within the school without extra retribution. In addition, it should be useful to inform about calls and requirements for application in detail. It is also important to consider the time-demanding factor when explaining the different career options a teacher can take. Some of them also mentioned that an international view with information about career options in other country contexts would be interesting.</p>	<p>Case 3. <i>"I would suggest including one-person positions with responsibilities and without financial compensation...they could appear in another section on Collaboration within the school"; "I'm not interested [in other career options], there aren't enough hours in the day for me to fill out more papers or documents."</i></p> <p>Case 5. <i>"I would add more testimonials and examples, from different educational administrations and from other countries... I would expand with the procedures and calls to carry it out."</i></p>
<p>In which way did the platform motivate teachers?</p>	<p>Competence materials, creating and sharing them. In addition, it reinforced the perception, already previously felt, about collaboration as a powerful strategy for improving teaching and teacher professional development. However, some teachers declared no change in motivation.</p>	<p>Case 1. <i>"I have learned to develop learning situations [competence materials]."</i></p> <p>Case 2. <i>"The truth is that it has not motivated me excessively."</i></p> <p>Case 3. <i>"To a great extent [competence materials], I can't stop creating materials."; "The TPD course and the platform have motivated me a lot, although my vision of professional development does not favour me changing my professional career."; "It has strengthened the positive vision of the collaboration that it already had."</i></p> <p>Case 4. <i>"I found the competence section very interesting because it provides practical ideas for the classes."; "The platform itself has not changed my motivation"</i></p> <p>Case 5. <i>"The collaboration and the competence section, within my limitations due to my specialty. In the latter, all the sections: controversies, ABI and real contexts, I see as totally interesting and necessary".</i></p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>How views about the teaching career have changed as a consequence of the platform use?</p>	<p>No significant changes have been reported. Most of the career paths shown were already familiar to the interviewees and even some of them already have followed them.</p>	<p>Case 1. <i>"No changes, my goal is to be a teacher and to have direct contact with students because I feel comfortable in that way."</i></p> <p>Case 2. <i>"For the moment I will continue teaching, I do not consider changes."</i></p> <p>Case 3. <i>"The thing about exploring new professional options...if they involve more bureaucracy than I have now...I'm not interested, there aren't enough hours in the day for me to fill out more papers or documents."; "They do not interest me, the only thing that would interest me would be the design of interdisciplinary teaching materials, I think they are necessary at this time."</i></p> <p>Case 4. <i>"I have not paid much attention to this section because at the moment I have no interest in other teaching careers."</i></p> <p>Case 5. <i>"No, I reached them late, because I have already started consulting, precisely these last two years... But I do not rule out, for reasons of my school's structure, becoming part of the management team."</i></p>
<p>Which elements/resources of the platform are especially interesting to develop particular skills and competences relevant for the teaching profession nowadays?</p>	<p>Learning situations that are represented in competence materials. All interviewed teachers valued that as learning situations, that is a new concept that appears in the new Spanish curriculum and that is the required way for planning the teaching in this law context. However, they do not always see that connection between platforms, competence materials and learning situations in the Spanish curricular framework. "Real contexts" materials are noted as being very useful for their teaching.</p>	<p>Case 1. <i>"Documentation and examples of learning situations [competence materials]."</i></p> <p>Case 2. <i>"Physics and chemistry learning situations [competence materials], since they are directly related to my subject."</i></p> <p>Case 3. <i>"All competence materials, since they use different materials and designs that open your eyes to other knowledge and other strategies."</i></p> <p>Case 5. <i>"Having a place with examples, guides and information related to STEM subjects has been very helpful."; "Real contexts" since it</i></p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
		<i>involves the search for a solution to a real problem, I think it is interesting both for us and for our students."</i>
<p>"Are there any aspects of the 3c4life platform that can be improved in terms of supporting the development of useful teaching competences? Do teachers miss any relevant aspect in this respect?"</p>	<p>Teachers miss more competence materials related to other subjects such as ICT, Computer Science or Geology. In addition, they insistently declared that it would be very useful to have feedback from other teachers about competence materials implementation in the practice so they strongly recommend to have an application for that in the platform and for teachers to upload more competence materials that they could develop.</p>	<p>Case 2. <i>"I suggest creating and sharing more examples of learning situations from each subject."</i></p> <p>Case 3. <i>"I would like some learning situations [competence materials] to have feedback...difficulties observed during their implementation in the classroom and possible solutions to those difficulties."</i></p> <p>Case 4. <i>"I have missed a section of Geology."; "It could be interesting if there was a section where each teacher could upload a complete learning situation and the rest of the teachers could expand or improve it in some way."</i></p> <p>Case 5. <i>"The inclusion of matters directly related to digital competence..."; "The adaptation to the LOMLOE [Spanish new education law], well, I miss learning situations in itself."</i></p>
<p>How did the platform support teacher collaboration? Why? Which elements/features of the platform support the building and development of communities of practice? Which elements were best appreciated by teachers in this respect?"</p>	<p>Collaboration elements did not support teachers and they could be improved. The collaboration section of the platforms should be reviewed in terms of structure, accessibility and/or navigation. The forum seems not so user-friendly and does not allow for real exchange of experiences/opinions.</p>	<p>Case 2. <i>"On the platform, more than collaboration is needed, in order to carry out a real exchange of opinions in the communication forums. He believes that collaboration has not been favoured."</i></p> <p>Case 4. <i>"Opinions can be exchanged through the forum but I think it remains a bit limited and as I said before it is not clear to me how it is structured."</i></p> <p>Case 5. <i>"The Moodle platform in which we had the course hosted [the TDP course offered along with the platform], it would be nice to extrapolate it to your platform, and add a plus with an internal Moodle."</i></p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>How do teachers' views about teacher collaboration have changed as a consequence of the use of the platform?</p>	<p>There were no changes directly associated with the use of the platforms in terms of collaboration. All teachers were positively oriented to collaborate regardless of the platforms and from the beginning of the intervention.</p>	<p>Case 1. <i>"It has not especially changed."</i></p> <p>Case 2. <i>"No."</i></p> <p>Case 3. <i>"It has strengthened the positive vision of the collaboration that it already had."</i></p> <p>Case 4. <i>"Honestly, there hasn't been any change."</i></p> <p>Case 5. <i>"It has improved it, if I was already convinced that we had to collaborate more, now I am even more so."</i></p>
<p>Do teachers miss anything in the platform to support teachers' collaboration?</p> <p>Do teachers have any concrete suggestions to improve the platform design in terms of promoting teacher collaboration?</p>	<p>A real collaborative element for exchange. They think that it could be useful to include a section for giving feedback to competence materials to promote collaboration and also allowing them to upload some of them creating on their own.</p>	<p>Case 1. <i>"Although teacher collaboration has been facilitated, it should have been encouraged more frequently and through different tools."</i></p> <p>Case 2.</p> <p>Case 3. <i>"Perhaps I miss a section explaining the advantages of collaboration when designing learning situations."</i></p> <p>Case 4. <i>"It could be interesting if there was a section where each teacher could upload a complete learning situation and the rest of the teachers could expand or improve it in some way."</i></p> <p>Case 5. <i>"The forum/discussion site could have an open version, without login, and a private one."</i></p>
<p>Is there any other relevant aspect you would like to discuss in relation to the 3C4life platform?</p>	<p>The teacher professional development course offered along with the use of the platform has been very valuable for teachers. Educational institutions should guarantee proper teacher training with courses for the entire staff, especially when there is a change in legislation. Time and spaces are needed for collaboration</p>	<p>Case 3. <i>"Seeing how the learning situation [competence materials] work in other schools [during the TPD course offered] has favoured my creativity and that always favours my collaborative facet."</i></p> <p>Case 4. <i>"During the course we have been able to share our work and exchange opinions."; "Educational institutions guarantee correct teacher training with courses for the entire staff, especially when there is a change in legislation. If after a change there is no training for all</i></p>

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>and teacher professional development that should be included within working hours. One teacher suggested improving the navigation menu of the platform.</p>	<p><i>teachers, it is as if all the machinery is changed in a factory but their workers are not taught to use it."</i></p> <p>Case 5. <i>"Revise the navigation or menu of the web page itself, although I couldn't say which would be better."; "Institutions should value to a greater extent those trainings that involve personal and professional development, as part of our work. Let them count as hours within our schedule."</i></p>


3C4Life
Career Guidance, Collaborative Practice
and Competence Development

Partners' case study report

THE NETHERLANDS

According to the project description, any partner should report about 5 cases to provide an in-sight into how the platform has been used by different teachers in any country. We assume that the implementation of the platform (how it was promoted and adapted) is similar for all the cases reported by any partner. If you consider that your responses to the table below will vary depending on the individual case being reported you should provide a different table for any case.

Please, respond to the following questions to illustrate how the platform has been promoted and adapted in your country:

Questions	Responses of partners from: THE NETHERLANDS
1. When and how was the teach4life platform promoted in your country and how successful was this from your point of view?	The teach4life platform was launched in early October 2022. We had collected our participants through email, mail lists and social media.
2. What kind of adaptations have you made to the 3C4Life platform for its use in your national context? Why?	We had an idea that adding news items to the Platform could be interesting (and because we had username/password we could do this ourselves). After about 5 of those news items, we stopped (because the idea was that if only the Netherlands was doing this it would lead to bias in the treatment (other countries were not adding news)).
3. Have you added new/different materials/examples? If your answer is yes, Which ones and in which way are they different from the international version? Describe them.	We are still producing new videos (with material from the interviews we did), but we did not publish them on the platform. Maybe we can publish this in November 2023 (during a Dutch conference).
4. Have you offered the 3C4Life platform in the context of an official teacher professional development course? If your response is yes, explain the characteristics of the course (number of maximum participants, number of hours, existence or not of specific support and following up by teacher educators, etc...).	We did not, so mainly we had individual participants. We had one exception, and that was a course given by Monica Wijers, with about 12 teacher-students at the Utrecht University.
5. How have you encouraged and monitored the use of the platform by participants?	We have sent emails to the group every month (sep. 2022 etc.). we stopped in februari 2023. This was just a 'reminder' that people were encouraged to go to the platform.
6. Indicate key dates when you performed actions to promote the use of the platform (social media posts, platform workshops, strategic meetings...)	We made short messages in the newsletter of Ecent and ELWleR (national platform for STEM teacher trainers). And our counter-part (VOHOnetwerken) has created an information page on their website.
7. Have you suggested particular paths when exploring and using the 3C4Life platform? If your response is yes, explain which ones and why.	We did not give hints how to use the platform.
8. What measures were taken to initiate collaboration in the forum? How successful were they and why?	Collaboration did not work.

Questions	Responses of partners from: THE NETHERLANDS
9. How have you ensured the number of evaluation questionnaires before using the platform, 3 months after and 6 months after starting to use the 3C4Life platform?	Like we stated above we had our direct mails to the group every month, so after three and six months we made clear that we appreciated filling in the questionnaires.
10. How have you selected participants for the 3C4Life case studies?	We tried to have teachers from different disciplines, and also 'a bit younger' than the average age of our group, because we think this is 'more inspiring' for other teachers.

Description of individual cases in The Netherlands

Include all the relevant information to characterise the teachers participating in your national case studies. **Fill one form for each of the 5 teachers** participating in your national case studies. Any partner should provide **5 forms** corresponding to any of the cases (any form will be considered a case).

You can use your own knowledge about the teacher and all the information you collected about him/her before and during the interview (see the templates provided for these purposes).

Case number: 1

Country: The Netherlands

Teacher/case n°	1
Age	60
Gender	female
Pseudonym	Miriam Quant
Background information: <ul style="list-style-type: none"> Motivations and goals as a teacher Teaching referents School description and previous experience (only for in-service) 	<p>The grandfather on my mother's side was head of an elementary school and I have three sisters and two of them are also teaching at elementary school. On my father's side I have a couple of nieces and a nephew who are teachers as well.</p> <p>All of them are in elementary education. On my mother's side I have a couple of nieces and nephews who are also teachers, but they are in adult education or in university education.</p> <p>So, you could say in my family there are 'education people' here and there, yes. They didn't explicitly recommend teaching as a job, but one of my sisters was studying at the Pabo when I was still in secondary school. It will have affected me unconsciously, I assume.</p>

Teacher/case n°	1
General Information regarding teaching: career and professional development and collaboration	
Current position, school	Teacher mathematics in a 'middle-sized Dutch city'.
Teaching experience/professional development of the teacher	<p>More than 30 years, but so I don't know exactly how many years. I guess like 33, 34 years, maybe even 35.</p> <p>At the current school, I teach 15 years now.</p> <p>There are about 2500 students, divided over four locations, that are close to each other. I don't know how many teachers.</p> <p>--</p> <p>Earlier career experiences:</p> <p>I have done my PhD when I was also teaching part-time. For 1 year I did not teach, but only did observations. Very soon I found out that I wanted to teach again and so I combined teaching and researching.</p> <p>Later I have been in the management team of my school for some years as a team manager. For that I did some extra courses on leadership and coaching.</p> <p>In the last couple of years, I am no longer in the management, but I still do some tasks next to teaching math. I am a mentor for about 7 hours a week. We will further develop the mentorship to give students more ownership and responsibility. We work on this together in a team of three colleagues and we will do a pilot next year. Some research will be done on the pilot as well, by a teacher-researcher. So, in this way there is a lot of cooperation with different colleagues on all kind of aspects of education, which is very nice. And one more example from the math department: During Covid with the department of the VWO location together we read a book of Craig Barton on teaching math, chapter by chapter and then discussed online what it could mean for our own teaching.</p>
Why he/she decided to become a teacher?	I really enjoy explaining things. And, I liked doing arithmetic tasks as a child, and I liked math a lot. I want to work with children. But I'm not suited for Pabo [teacher education college for primary school], because you need a very broad degree of general knowledge for that, and you must be able to do a little bit of

Teacher/case n°	1
	<p>crafting. Well, I didn't see myself doing any of that. So that's how I decided to study educational sciences at university. But then I missed my math and I wanted to do some teaching myself as well. That's why I also got my second degree teaching qualification in math [teaching degree for teaching lower secondary and prevocational education].</p>
<p>Is he/she planning to change their position? If yes, which position and why?</p>	<p>No, Miriam was 'head of the lower grades' for a couple of years, but recently she decided it was enough, she really like the opportunities in her daily teaching work.</p>
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>I will describe what happens at my school:</p> <p>It's a traditional school where a lot of people do want and can do a lot of things. So, it is a school after my own heart, I must say. We are also really looking at how we can do things differently: the executive skills, formative evaluation, more ownership, all those kinds of things.</p> <p>But there's not always enough thought, in my opinion, on how to implement this. There is a lot what we want. But we have very enthusiastic colleagues who also want all kinds of things and who don't go straight home after classes but are willing to stay longer at school if needed.</p> <p>What I also really like is that we have two or three people who are activity coordinators. If you want to organize something, an outing or I don't know what, they do it for you. And it's also nice that it's considered important to spend money on that. You must come up with the content yourself, but arranging things that are necessary, like the bus for example, they do that for you. In that respect it really is a perfect school.</p>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>Something that everybody mentions is time. As well concrete time as finding the right moment because everybody has their own schedule and their own activities and not everybody works every day. So, finding a quiet time to meet, that's really a very big challenge. That's even more of a challenge than being on the same wavelength.</p> <p>That goes for the (math) department as well as for the teaching teams. We have meetings with our (math) department, and we have meetings with the Teaching Teams. I am part of the teaching Team 2 and 3 VWO [grades 8 and 9 of the pre-university stream]. In this team are the colleagues who give most of their lessons in these grade levels. Also, mentors of those classes, are</p>

Teacher/case n°	1
	<p>automatically in the Teaching Team even if they teach most of their lessons in another grade level or in another department.</p> <p>In the math department meetings, all the math teachers come together, which is kind of fun. Since last year, we start every meeting with an hour-long discussion about content related topics. The content always fell by the wayside, because often we started by discussing all kinds of organizational things and at the end when we want to talk about something substantive people must go home already, or they are tired. So that is why we now start with the content.</p> <p>We also have separate meetings with the math colleagues who teach the same grade level. Sometimes it is difficult to find the right time for that. Often it is at the end of the afternoon and then it goes fast, fast, fast, because everyone wants to go home and is tired or wants to do something else.</p> <p>The same thing happens with the teaching team. The number of meetings in the year is well scheduled, but those meetings largely are about topics or themes that come from the management, like a new testing policy, or organizing Lek & Linge days. At such meeting time is reserved for discussing these substantive topics. And then teachers leave the meeting full of good intentions. And then, at the next meeting, it turns out that these intentions have remained just good intentions and that not much has come of them in practice. So time really is the most important factor here.</p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>For professional development, we have four so-called training days at school. These are fixed in the year-calendar. That was until now. You could then choose from about seven different courses or so. You could also choose to come up with something yourself: for example, you could ask for a whole day with the department, and get money to hire experts.</p> <p>In the Covid time, these training days were somewhat neglected. And they were very broad, so everyone was busy with his or her own thing, and not much did come out of it.</p> <p>I understand that next year the training days will be much more based on a less broad palette from which to choose. Which will result in that we're all kind of working on the same things. Yes, furthermore, in school we have a day on student supervision. We are also going to introduce so-called development days. In October we have two days to work with the (math) department or with the team for a whole day on educational development.</p>

Teacher/case n°	1
<p>What would he/she need to keep on growing professionally?</p>	<p>I am now busy with the new mentorship and the pilots for next year so I will learn a lot [see above]. We are going to engage the students a lot more. I'm going to be the coach next year as well. Already 28 people are going to participate in this pilot next year and we all start the school year with introductory talks not with a list students fill in. But we're going to let those students have the conversation themselves in a different way. For instance, by having them write on cards which are topics they want talk about. We want to open this up a lot more and let the students take the initiative. We're going to have a triangular conversation twice a year, with parents, student and teacher and have the student prepare this. And then we must 'sit on our hands', and we shouldn't say: 'I want to see that preparation'. We can help them of course. But they must do it. And then you do get a lot more out of this conversation, like: What do you want with school? But maybe also outside of school. And with the 3 parties we can better talk about: What does such a student need? What is a student doing? What does he/she find important? and do we have a role in that and how can we guide a pupil in that as a parent or as a coach or mentor?</p> <p>We're going to have these conversations with all the students, not only the ones that need special care, and in the pilot we also get time for that. We want less drop-outs, that is really important, and in addition, those executive skills. People are really working on that, because of course that is also a part of getting more ownership. You must be able to plan. So I suspect we're going to take some steps in that, and we're going to try to research or map that out with questionnaire and interviews. It's exciting. Yes, very fun, yes.</p>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>The best combination between 'time', 'enough nice colleagues' and a school board that understands 'how to innovate/cooperate'.</p>
<p>PLATFORM teach4life</p>	
<p>Describe the general experience using the 3C4life platform</p>	<p>I have been on the platform some time ago, but since then I didn't look at it very often. This is also the case because I'm now in the phase of my career where it is about to finish in some years. But recently because you asked, I've been watching it more closely and I was very pleasantly surprised. I really liked the style in which it is written. It was very clear, and I think, if you're at a stage in</p>

Teacher/case n°	1
	<p>your career where you want to orientate yourself on: what can I do next? This platform could be quite a nice start.</p> <p>There were some general links too. If you want to become a school leader and then you come to an official website of the ministry of education on how to become a school leader or manager, I don't know if this works best. But on the other if you are still in a 'searching phase' and do not know what options exist, that this can work well.</p> <p>Interviews still are very few on the platform. And concerning content (competences) I missed the math. It seems that quite often there are examples from the science subjects, like biology or physics, but then an example of mathematics is missing. Maybe this is done on purpose because the emphasis is on overarching themes, but if one really wants to go deeper into the content this is an omission.</p> <p>And the forum isn't active yet. Maybe it is better to link it to teacher education institutes, or teachers' associations such that people can more easily find and access it. Because it can be of course nice that you can ask questions such as: how does this work for you? what are your best experiences etc.? So, I get the idea behind it. But now you must go to this page very specifically. And if then nobody answers, because the forum is not active, people will leave it and not return there. Also, here [in the Netherlands] we have an active Facebook group teacher of mathematic, that functions very well as a forum. Questions are regularly asked and answered and there is really exchange taking place. And it is more like you visit it every day and scroll down and then you see it is active all the time. The danger is that Facebook is a bit outdated and only older teachers will use it and not the younger ones. They may prefer other social media like Instagram or TikTok. So, this is the way to go!</p>
<p>Which concrete suggestions of improvement did he/she have?</p>	<p>The platform further is okay. I had looked before and then wondered: what to do with it. But when I visited it again, I thought well, if you're still looking 'what to do', it could really be a good starting point. Off course it needs more content [teaching materials, competence] and it should be updated on a regular basis. But someone who doesn't know much yet about teaching competence and career, and is really searching, can really find</p>

Teacher/case n°	1
	<p>some useful information there. So therefore, I said I was pleasantly surprised</p> <p>But for myself I never have the patience to sit down and watch those videos, so I never really know how that works. How much patience people have for that, so those videos I guess shouldn't be too long anyway and maybe the transcript should be available. Then people can choose to just read instead of watch.</p> <p>As for STEM in a broader perspective and integration in themes, I think it is a very valuable perspective, but very complicated to realize in practice. Everyone is specialist in one subject and it is hard to know what is in the other subjects. I see math – to some extent - as a supporting subject and from that perspective we could connect to other subjects, especially if it is about calculations with number and ratio etcetera. We did try this in school for example by discussing about the advantages of using a ratio table. But this takes a lot of time and not everyone will support this. It would already be a big step if we all knew what and how is done for similar topics in all our subjects. But even this is hard, and it sometimes feels like you have to address this every year all over again. This is not very fruitful.</p>
Which elements of the platform did he/she find most interesting/useful?	The career examples (both video and a short description) can be very supportive for new but also 'career-changing' teachers.
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	see above
How he/she finds the career section of the platform (what is good, what is missing)?	see above
Which suggestions for improvement he/she has regarding the career part?	see above

Teacher/case nº	1
How has his/her view about the teachers' career changed in anyway due to the platform?	see above
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	see above
How he/she finds the competence section of the platform (what is good, what is missing)?	see above
Which suggestions for improvement he/she has regarding the competence part?	see above
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	-
How has his/her view about teacher collaboration changed?	-
What did he/she find most useful to support teacher collaboration?	-
How he/she finds the collaboration section of the platform (what is good, what is missing)?	-

Teacher/case n°	1
Which suggestions for improvement did he/she make regarding the collaboration part?	-
Any additional comments that he/she made about the platform:	-

Case number: 2

Country: The Netherlands

Teacher/case n°	2
Age	33
Gender	male
Pseudonym	Peter Nashville
Background information: <ul style="list-style-type: none"> Motivations and goals as a teacher Teaching referents School description and previous experience (only for in-service) 	<p>I have been a teacher for 10 years, and I work at the current school for about 7 years.</p> <p>The school I work is a rather traditional secondary school for havo/vwo/gymnasium¹⁴ but with as special focus on the STEM subjects [Note: havo/vwo/gymnasium are levels of secondary education that give access to higher education and universities].</p> <p>1400 students and 120 teachers.</p>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	math teacher

¹⁴ https://en.wikipedia.org/wiki/Education_in_the_Netherlands

Teacher/case n°	2
<p>Teaching experience/professional development of the teacher</p>	<p>I don't necessarily know if it's "as a teacher," but what I think is very important is that I deliberately chose the subject of mathematics and also to teach it in secondary schools.</p> <p>I did a master's in Stochastics and Financial Mathematics and everybody I studied with, went to work on the financial market, for example at a stock exchange. For me that's such a perverse world. Contributing to what kids need, that's really become a matter of principle for me. And from that perspective, I also look at the educational sector and then I see we have shortages of math teachers and that's disastrous on so many fronts, so that's where one of my goals lies. I want more people to become teachers or preferably to become math teachers and to pass on the passion for the subject.</p> <p>That it is not a static subject, but rather that mathematics is fantastically beautiful. If I give a few lessons a year to my classes, in which I 'turn away' from the regular program in the textbook and instead start talking about the too-crazy paradoxes in math and the other fun things that are in that subject, then my year has already succeeded, and I have achieved my goal. Even better is if I can also convey that to new teachers, who will then do the same when they see how fun that is and have students also see that math is everywhere.</p>
<p>Why he/she decided to become a teacher?</p>	<p>The thing is that I actually never wanted to be a teacher, my whole family on my father's side is in education and I had always said, "no, I'm not going to do that now. I'm going to leave. I'm going to do something else". And then one time I was asked to take someone's sabbatical during my studies and then I spent 6 months in front of the classroom. In the process, I was very free. I was allowed to do anything because that teacher would come back later any way and they just had shortages. Nobody wants to work for 6 months and I as a student enjoyed doing it and in fact, I enjoyed it so much that I stuck around after that.</p>
<p>Is he/she planning to change their position? If yes, which position and why?</p>	<p>I am a math teacher and the mentor (tutor) for my have 5 class [NB. Upper secondary final year, grade 11]. Within the math department I am also responsible for the Mathematics A program in Havo grade 11. I make sure that everything goes smoothly with tests and I'm responsible for writing the PTA [i.e., program for tests, assessments, and exams], which I also do for the school where I work with my other intern.</p>

Teacher/case n ^o	2
	<p>At school I you organize the homework class. That's a quiet environment, where the students who are struggling at home can just sit and work quietly on homework, with two tutors at 4 days a week, the last two hours of the day. Further I'm 1 day a week in the team for updating the national core curriculum goals for mathematics in lower secondary at the SLO [i.e., Netherlands Institute for Curriculum Development]. After summer I will start work at The Board of Tests and Examinations [College voor Toetsen en Examens, or CvTE] 1 day a week to ensure the quality of the national examinations for mathematics A.</p>
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>You have to find opportunities to broaden your perspective. Peter thinks he is creative enough.</p> <p>Peter is currently thinking he once will become a math teacher educator at an educational college or at university.</p>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>Our math department with 14 colleagues is very well organized, for example we all went out to dinner together to say goodbye to someone who is retiring. So, the atmosphere is really nice and it's a young team, but very driven and with a lot of first graders [i.e., teachers for upper secondary]. We always try to be 'the best boy in class as a department and do what is asked of us. Of course, it has its repercussions. We as mathematics teachers do have quite a big influence on, for example, the transition from year 3 to 4 [from grade 9, lower secondary, to 10, upper secondary]. Because we can make demands on students to be allowed to choose certain parts of mathematics. Sometimes that feels unfair to teachers of other subjects: Why are they allowed to do that and why can't we?</p>
<p>What are the main challenges for teachers' career development form his/her side?</p>	<p>So far, I can't complain about the number of congresses and conferences I've been to and the number of meetings. I am very fanatical about that myself, though. I am also going to train other teachers next year as an educator within the school and I will do some courses for that as well. I also have good contact with the Math PCK teacher at the University of Amsterdam. Eventually, I would also like to one day make the move to teacher education and then work there as a Math Educator.</p>

Teacher/case n°	2
What would he/she need to keep on growing professionally?	This becoming a math teacher educator at an educational college or at university is something for the future.
What would he/she need to improve their collaboration with other teachers/colleagues?	See all the above. I'm already active in the broader educational field.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	<p>I really like the platform. I didn't have that much time, but I like the cool projects and stuff.</p> <p>Competence</p> <p>I really liked SSI, so those problems you have that are socially charged and that you must be able to deal with in your lessons. In the Netherlands, of course, we had the Lucia de B. case. [NB. This is a trial in which a nurse was unjustly convicted of several murders, due to incorrect handling of probability and statistics. She was later acquitted]. In America you also have several cases like that dealing with Statistics and how it can be used incorrectly. I also saw some STEM oriented materials in which integration is also sought. I think that's also very good.</p> <p>Career</p> <p>Those career perspectives highlighted all kinds of sides of what is possible as a career. I did miss the CvTE, which I could not find. Maybe that could be added, because I did see SLO, which is very nice, and of course there are the educational publishers, and the cito is included with the video of a testing expert. It is indeed positive that these are career paths that you could take as a teacher to become active elsewhere.</p>
Which concrete suggestions of	<p>Competence</p> <p>You should expand it with more teaching materials. You guys are doing a really good job. It gives the teacher as much freedom as</p>

Teacher/case n°	2
improvement did he/she have?	<p>possible, as I have seen with some materials already for example about windmills. What I was wondering is whether Beta-Partners, which is quite a big network here in the Netherlands, and does this kind of thing, also participates in this. I don't know to what extent the platform is already trying to make a certain kind of integration with that. Existing side by side is also possible because the one is international [Platform teach4llife] and the other [beta partners] is local. But they also have some teaching materials and some other things that are similar, like teaching materials about patterns and mosaics. Maybe you can merge those databases.</p> <p>Career</p> <p>Add a video about a career for teachers at The Board of Tests and Examinations (CvTE), this they can do in combination with their teaching for 1 day a week.</p>
Which elements of the platform did he/she find most interesting/useful?	see above
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	see above
How he/she finds the career section of the platform (what is good, what is missing)?	see above
Which suggestions for improvement he/she has regarding the career part?	see above
How has his/her view about the teachers' career changed in anyway due to the platform?	see above

Teacher/case nº	2
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	see above
How he/she finds the competence section of the platform (what is good, what is missing)?	see above
Which suggestions for improvement he/she has regarding the competence part?	see above
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	-
How has his/her view about teacher collaboration changed?	-
What did he/she find most useful to support teacher collaboration?	-
How he/she finds the collaboration section of the platform (what is good, what is missing)?	-
Which suggestions for improvement did he/she make regarding the collaboration part?	-

Teacher/case n°	2
Any additional comments that he/she made about the platform:	-

Case number: 3

Country: The Netherlands

Teacher/case n°	3
Age	36
Gender	male
Pseudonym	Fred Williams
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School description and previous experience (only for in-service) 	<p>Yes, well I, I don't know if you're familiar, for example, with Vathorst College or Unic in Utrecht [those are innovative schools, started around 2005]? Impuls was started at the same time and also with more or less the same vision. Of course, the elaborations are always different, but that already gives a picture of what the school is.</p> <p>Pedagogically very strong and perhaps didactically less so. So less focused on cognitive development, but more focused on social emotional development: a pedagogically warm school.</p> <p>These are things that really appealed to me at the time, for example that students address me by my first name, the contact you have with students is more based on equality and not looking for a fight, but looking for it together.</p> <p>And not for the sake of it, that sometimes always sounds a little holistic or coaching, or whatever, But that That That is absolutely not, because there is a. There's a very well-grounded thought behind that. That still makes that what I love to this day: the just contact with those students. Then it's very much about helping young people move forward in their school careers and that you then have a kind of struggle together to pass an exam or a diploma. Not so much of "I have to test that with you," but more of "hey, that's a dot on the horizon and how are we going</p>

Teacher/case n°	3
	<p>to get there? And how do we make sure we all get there?' I think that's a very interesting way to look at it.</p> <p>And what comes on top of that is that it's a vision-rich school. There is a clear vision and that vision is present in the school. It's not a document floating on a website. We do have that document as well. But the vision is also really present in everything we do.</p> <p>In 2013, we rewrote that vision document again with the whole team. Then we also called that vision the DNA of Impuls, because it's in us. When you come in here, you feel that, notice that and see that happening around you.</p> <p>Then that's not something that's just written somewhere, in the form of 'we're here for the students, we want the students to grow' or something like that. Something so holistic, which is always true, but also doesn't really say anything. It is much more than that, it has a concrete effect."</p> <p>"You have to recalibrate that vision together every time: what is our pedagogical climate and what does that mean for you and how do you act in it? You will have to do that every year because every year you have new colleagues."</p>
<p>General Information regarding teaching: career and professional development and collaboration</p>	
<p>Current position, school</p>	<p>Mathematics teacher, Impuls</p> <p>"I'm teaching grade 1 and upper grades Havo and Vwo this year, mainly math B. In the lower grades we use a proprietary method from another school called math without a book with the Digital Math Environment (DWO) with it. We are a laptop school so all students have a laptop and this method is very minimal and incredibly effective especially for the algebra part with the DWO and that was exactly what we were looking for. In upper school we use Getal en Ruimte [math books]. "</p> <p>"Challenges and Collaboration in math?"</p> <p>No we actually don't. We have a very large component called 'setting'. Those are student-driven investigations, where students do an investigation about something every period. They get to totally decide what it's about. That really ranges from a setting about chocolate to the economy of London. I am also very actively involved in that, with other colleagues. That is really fantastic, but it just takes a lot of time. Next year they will be working on it 3 times 1.5 hours a week. That's a big chunk out of the curriculum, plus they also have 45 minutes of coaching</p>

Teacher/case n°	3
	<p>every day. These are all things that are at the expense of math hours and hours for the other subjects. “</p>
<p>Teaching experience/professional development of the teacher</p>	<p>“I did the teacher training program from 2005-2009, which I completed in four years. So since 2009, I have been teaching for 14 years now.”</p> <p>“For a very long time I did consider my own subject [mathematics] somewhat less important. That has changed now, but it is always a search. Also because I have less time for my subject with the students than the average teacher has per week. But I've always found that interesting because you start looking very much at what exactly a student needs to do to be successful, and we look for example, what exactly is needed and what should a student be able to do anyway to go to the upper school. And that's what we're going to offer. That's always a bit of a puzzle to put together.</p> <p>The first six years I was on my own: I was [the only math teacher and so] the whole math section. The school was very small then and it has grown since then, so I have two colleagues there. But we are all very much on our own parts. We sometimes talk about a continuous learning process of course, but we only have one class in the upper school of each year and of each level and of each math subject. So you're mostly on your "own island" because you almost don't have to deal with the math colleagues there.</p> <p>I'm teaching grade 1 and upper grades Havo and Vwo this year, mainly math B. In the lower grades we use a proprietary method from another school called math without a book with the Digital Math Environment (DWO) with it. We are a laptop school so all students have a laptop and this method is very minimal and incredibly effective especially for the algebra part with the DWO and that was exactly what we were looking for. In upper school we use Getal en Ruimte [math books]. “</p> <p>What are your other tasks and challenges?</p> <p>“I'm on the exam committee, we're very busy with that right now with the PTA [program of assessment] and Exam Regulations. I'm also ultimately responsible for everything around setting, so I supervise that and I supervise teachers in that. It's mainly showing Good Practices in supervising examinations.</p> <p>And I'm also a quality officer now. I just started doing that now, starting next year I'm doing 150 hours a year on that as well. Together with the divisional school leader, I will be ultimately</p>

Teacher/case n°	3
	<p>responsible for the quality of education. The result of the central final exams must increase, otherwise we will have problems with the inspectorate. We didn't have such good pass rate. That's a challenge, we always remain a bit at the bottom with exam results. That's not surprising either, because we do less cognitively. And our students simply have less experience with a 100 percent cognitive test, like the final exam.</p> <p>That is also always the struggle: 'then we will just do more on the subjects', but that again does not fit with our vision, and that vision is very important. Then again, if we look at the follow-up, we can show that our students change studies less often and complete their studies faster. So if we look purely financially from the government's point of view, our students are cheaper in the long run than other students. But the exam results are somewhat less, and that is what the inspectorate directs at and not so much at what happens afterwards.</p> <p>We look at it from another point of view: if you can work well together, present well and reflect well and you can set personal goals well. Then higher education (vocational education, university of applied sciences and university) will go smoothly, because those are very important skills for higher education. There it is not about being able to determine some mathematical integral well, or something like that.</p> <p>We already have good ideas and good plans, and that's what inspection has been thinking about lately. If you have good plans and evaluate them well, they are often happy with that."</p> <p>"I did curriculum.nu. That was a program where I could really look into other perspectives.</p> <p>I gained a lot of contacts from that, so that's really great.</p> <p>I'm also a member of the NVvW [Dutch association of mathematics teachers] and I go to meetings like the study day. Since six months I am in the Work Field Committee of all LOI [Institute for different kinds of educational programs] teacher training programs. That is also a very broad contact. And of course when visitors come to our school.</p> <p>So those are also moments when you have a lot of contact with other people. And we also just have these very random contacts."</p> <p>"I did quite a lot of things outside of school.</p> <p>At curriculum.nu, for example, that was pretty intense. Because at first I thought: hey, That's fun, thinking about curriculum and I get some workhours for it and then some sessions during a couple weekends somewhere, then we're just going to do that. But then we had and kick-off meeting there were people from the communications department of the Ministry of OCW and</p>

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	<p>they were going to give us media training. And then I realized that it was a bit more complex and bigger than I had thought beforehand. But I went full into that until I was one of the 3 teachers who ended up also doing the defense In the House of Representatives. So that was, I say in retrospect, the best professionalization program I ever did. It wasn't meant to be that way, of course, but it was for me. That professionalized me more than my courses, a master I've done before, or then whatever so I can recommend that to everybody to do that once or something like that."</p>
<p>Why he/she decided to become a teacher?</p>	<p>My father was a teacher, so that was never a [question]. Later I did make that choice consciously again. But I actually wanted to become an elementary school teacher right from elementary school, because that's pretty much what I envisioned. My father was a teacher, not in elementary education but in special education, which is comparable - he did the pabo [teachers' college for elementary education]. And then I entered secondary education and in the second grade I found out that I was very good at math and I thought: I'm going to be a math teacher, that's what I'm going to do.</p> <p>I do remember that I went to the dean and said: I want to become a math teacher, I will do have and then I will do that in Groningen. And then he had to laugh: but that's not possible in Groningen. For that I had to go to Leeuwarden. But you can see how (un)consciously that all went: I hadn't visited an open day or whatever. I just thought: yes, this is what I'm going to do, period!</p> <p>During my teacher training in the second year, that went very easily for me, especially the math subjects, which at that time still covered most of the course, I did those without effort. Then I went on to study mathematics at university. But I didn't like that at all. They were far too serious about mathematics for me. And then I went into a kind of crisis, so much so that I almost didn't want to be a teacher anymore, and I almost quit my studies.</p> <p>Then in my third year I continued for a while and then my SLB-er, my study career counselor, said at the time 'go and have a look at Impuls [a school for secondary education], do an internship there. That's really very different it's innovation education, go check it out'.</p> <p>I kept a logbook there then, every day and it's very funny to read that back, because in the beginning I thought, "what kind of</p>

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	<p>chaotic school is this?" and the longer I interned there, I found out more and more about the charm of that school.</p> <p>And then I actually chose again, like, oh yes, this is what I do want, because I do want to be here in this type of education. And then I did my second internship somewhere else and now I've been working at Impuls for 13 years, so I'm still there. I do remember that this was the first time I really consciously chose to become a teacher. So only during the third year of my teacher training.</p>
<p>Is he/she planning to change their position? If yes, which position and why?</p>	<p>“What would you need to continue to grow professionally? That's a good question. I've been teaching upper secondary school for 10 years, but I finally needed to get my first degree, so I'm doing that now. That's an HBO [University of applied sciences] master program that I'm doing through an abbreviated pathway. I did an entrance assessment for that and I only have to do the hardcore math courses. Other than that, I got all exemptions. I've just completed one year now and have to do one more year and then I'm done.</p> <p>And after that I would like to work one day a week in the future at a teacher training college or something like that. That seems very interesting to me, but for one day a week. I really wouldn't want to do that full-time right now, because I still like this school too much.</p> <p>I would want to become a teacher educator mainly because I want to train teachers the right way. I do have the urge to share about our school, and so do many of my colleagues. We also have a lot of visitors here at school. I like to be active in that. And for me and my colleagues, this is very much how education, at least part of education, is going to have to be. It won't be right for every student, but I do have the urge to share this with the rest of the world, and so I think that's what makes teacher training interesting. “</p>
<p>What are the main barriers for teachers' competence development from his/her side?</p>	
<p>What are the main challenges for teachers'</p>	

Teacher/case n°	3
collaboration from his/her side?	
What are the main challenges for teachers' career development form his/her side?	<p>What advice would you like to give to beginning teachers?</p> <p>"I would like to give them a kind of environmental awareness. That may sound a little difficult, because sometimes it is very difficult to see what that environment is. But I think that very environment can be the salvation. Then I really think of a union, a trade association, an SLO that can support. There are a lot of those clubs in education, but there are really some that are there to help you as a teacher.</p> <p>And I often notice that starting teachers have actually been given too little of that in training to properly realize how complex that field is, in which you work, but at the same time how you can also use that field properly to address and solve the problems in your daily work."</p> <p>Another side of professionalism:</p> <p>"I did curriculum.nu. That was a program where I could really look into other perspectives.</p> <p>I gained a lot of contacts from that, so that's really great.</p> <p>I'm also a member of the NVvW [Dutch association of mathematics teachers] and I go to meetings like the study day. Since six months I am in the Work Field Committee of all LOI [Institute for different kinds of educational programs] teacher training programs. That is also a very broad contact. And of course when visitors come to our school.</p> <p>So those are also moments when you have a lot of contact with other people. And we also just have these very random contacts. I did quite a lot of things outside of school.</p> <p>At curriculum.nu, for example, that was pretty intense. Because at first I thought: hey, That's fun, thinking about curriculum and I get some workhours for it and then some sessions during a couple weekends somewhere, then we're just going to do that. But then we had and kick-off meeting there were people from the communications department of the Ministry of OCW and they were going to give us media training. And then I realized that it was a bit more complex and bigger than I had thought beforehand. But I went full into that until I was one of the 3 teachers who ended up also doing the defense In the House of Representatives. So that was, I say in retrospect, the best professionalization program I ever did. It wasn't meant to be that way, of course, but it was for me. That professionalized me more than my courses, a master I've done before, or then</p>

Teacher/case n°	3
	<p>whatever so I can recommend that to everybody to do that once or something like that.”</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>“What would you need to continue to grow professionally? That's a good question. I've been teaching upper secondary school for 10 years, but I finally needed to get my first degree, so I'm doing that now. That's an HBO [University of applied sciences] master program that I'm doing through an abbreviated pathway. I did an entrance assessment for that and I only have to do the hardcore math courses. Other than that, I got all exemptions. I've just completed one year now and have to do one more year and then I'm done. And after that I would like to work one day a week in the future at a teacher training college or something like that. That seems very interesting to me, but for one day a week. I really wouldn't want to do that full-time right now, because I still like this school too much. I would want to become a teacher educator mainly because I want to train teachers the right way. I do have the urge to share about our school, and so do many of my colleagues. We also have a lot of visitors here at school. I like to be active in that. And for me and my colleagues, this is very much how education, at least part of education, is going to have to be. It won't be right for every student, but I do have the urge to share this with the rest of the world, and so I think that's what makes teacher training interesting.”</p>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>What I myself am very much looking for are always again people to contact. I was also thinking about the kind of profiles that are there, which I find quite interesting. But I would also find it particularly interesting if there is an e-mail address, so that you can contact that person if you think, hey, that's an interesting person for that time to send an e-mail of, hey, can we have a coffee sometime for half an hour or so just to talk about things. I would add that contacts option so that it can really become a network. If there is an interesting profile that you think has exactly what I am looking for, you want to be able to look it up. Like with LinkedIn, that sometimes works, but then you have to search a lot first.</p>
<p>PLATFORM teach4life</p>	

Teacher/case n°	3
Describe the general experience using the 3C4life platform	
Which concrete suggestions of improvement did he/she have?	<p>“What I myself am very much looking for are always again people to contact. I was also thinking about the kind of profiles that are there, which I find quite interesting. But I would also find it particularly interesting if there is an e-mail address, so that you can contact that person if you think, hey, that's an interesting person for that time to send an e-mail of, hey, can we have a coffee sometime for half an hour or so just to talk about things.</p> <p>I would add that contacts option so that it can really become a network. If there is an interesting profile that you think has exactly what I am looking for, you want to be able to look it up. Like with LinkedIn, that sometimes works, but then you have to search a lot first.”</p>
Which elements of the platform did he/she find most interesting/useful?	
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	<p>“What I myself am very much looking for are always again people to contact. I was also thinking about the kind of profiles that are there, which I find quite interesting.”</p>
How he/she finds the career section of the platform (what is good, what is missing)?	<p>“What I myself am very much looking for are always again people to contact. I was also thinking about the kind of profiles that are there, which I find quite interesting. But I would also find it particularly interesting if there is an e-mail address, so that you can contact that person if you think, hey, that's an interesting person for that time to send an e-mail of, hey, can we have a coffee sometime for half an hour or so just to talk about things.</p> <p>I would add that contacts option so that it can really become a network. If there is an interesting profile that you think has exactly what I am looking for, you want to be able to look it up.</p>

Teacher/case n°	3
	<p>Like with LinkedIn, that sometimes works, but then you have to search a lot first.”</p>
<p>Which suggestions for improvement he/she has regarding the career part?</p>	<p>“I would like to give them a kind of environmental awareness. That may sound a little difficult, because sometimes it is very difficult to see what that environment is. But I think that very environment can be the salvation. Then I really think of a union, a trade association, an SLO that can support. There are a lot of those clubs in education, but there are really some that are there to help you as a teacher.</p> <p>And I often notice that starting teachers have actually been given too little of that in training to properly realize how complex that field is, in which you work, but at the same time how you can also use that field properly to address and solve the problems in your daily work.”</p> <p>Add another side of professionalism to platform: “I did curriculum.nu. That was a program where I could really look into other perspectives. I gained a lot of contacts from that, so that's really great. I'm also a member of the NVvW [Dutch association of mathematics teachers] and I go to meetings like the study day. Since six months I am in the Work Field Committee of all LOI [Institute for different kinds of educational programs] teacher training programs. That is also a very broad contact. And of course when visitors come to our school. So those are also moments when you have a lot of contact with other people. And we also just have these very random contacts. I did quite a lot of things outside of school. At curriculum.nu, for example, that was pretty intense. Because at first I thought: hey, That's fun, thinking about curriculum and I get some workhours for it and then some sessions during a couple weekends somewhere, then we're just going to do that. But then we had and kick-off meeting there were people from the communications department of the Ministry of OCW and they were going to give us media training. And then I realized that it was a bit more complex and bigger than I had thought beforehand. But I went full into that until I was one of the 3 teachers who ended up also doing the defense In the House of Representatives. So that was, I say in retrospect, the best professionalization program I ever did. It wasn't meant to be that way, of course, but it was for me. That professionalized me more than my courses, a master I've done before, or then</p>

Teacher/case n°	3
	<p>whatever so I can recommend that to everybody to do that once or something like that.”</p> <p>Extend collaboration to career paths on platform: “What I myself am very much looking for are always again people to contact. I was also thinking about the kind of profiles that are there, which I find quite interesting. But I would also find it particularly interesting if there is an e-mail address, so that you can contact that person if you think, hey, that's an interesting person for that time to send an e-mail of, hey, can we have a coffee sometime for half an hour or so just to talk about things. I would add that contacts option so that it can really become a network. If there is an interesting profile that you think has exactly what I am looking for, you want to be able to look it up. Like with LinkedIn, that sometimes works, but then you have to search a lot first.”</p>
How has his/her view about the teachers’ career changed in anyway due to the platform?	
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	-
How he/she finds the competence section of the platform (what is good, what is missing)?	
Which suggestions for improvement he/she has regarding the competence part?	
Collaboration	

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In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	-
How has his/her view about teacher collaboration changed?	-
What did he/she find most useful to support teacher collaboration?	-
How he/she finds the collaboration section of the platform (what is good, what is missing)?	-
Which suggestions for improvement did he/she make regarding the collaboration part?	-
Any additional comments that he/she made about the platform:	-

Case number: 4

Country: The Netherlands

Teacher/case n°	4
Age	29
Gender	male
Pseudonym	Richard Elsewhere
Background information:	
<ul style="list-style-type: none"> Motivations and goals as a teacher 	<p>"I need to have that social connection with young people, with young adults, to give them great things to learn, about biology than in my case. But mostly just that working with teenagers. I</p>

Teacher/case n°	4
<ul style="list-style-type: none"> • Teaching referents • School description and previous experience (only for in-service) 	<p>thought that was really cool. As challenging as they can be, sometimes they can be very stimulating and also very funny and inspiring and I learn a lot from them. “</p> <p>“I first taught adult education for one year, after I finished my degree, at Boswell Bèta in Utrecht, teaching courses that actually covered the entire Dutch upper secondary education curriculum of biology. Those were courses of about 2.5 to 3 months. Probably a kind of crash course for me also to learn all the material of biology again for a while. I did that for a year. That was back in COVID days, so it was all digital.”</p>
<p>General Information regarding teaching: career and professional development and collaboration</p>	
<p>Current position, school</p>	<p>“After that I ended up at the Vierde Gymnasium in Amsterdam West in de Houthavens and that's where I still teach now. I've now just finished my second year there at the Vierde [Gymnasium].”</p> <p>I just want to know, do you guys also in lower secondary education, do you use your own method or do you use an existing method?</p> <p>“We do have books that we use, that we use as kind of a foundation, so we have nectar then for our undergrad, but that's more like a guideline. I wouldn't say that's the core of our teaching. For example, we have developed our own workbooks for both grade one and two that have labs in them and have assignments that we feel are more appropriate to our teaching.”</p>
<p>Teaching experience/professional development of the teacher</p>	<p>How are things going there at the moment?</p> <p>“Yes, good. This year is a bit of a special year for me, because I'm combining it with another job, so I'm now also working at Utrecht University as a project leader. So I have two jobs, so it's kind of dividing my attention in that.</p> <p>But yes, I think the nice thing about the combination is that I can also apply precisely the expertise that I have from being a teacher to my project leadership and vice versa. So a bit of a special year, but it's going well.</p>

Teacher/case n°	4
	<p>I have two first classes this year so it's very manageable and they just had their last test week. We have the report meeting next Tuesday and then we have to meet about those students. Also especially the doubtful ones then of how can we still let them transfer there next year? What views do all the teachers have? So that is exciting, especially for those students and well, also for us. Because yes, some have a different view of a student than you might have."</p>
<p>Why he/she decided to become a teacher?</p>	<p>I started studying biomedical sciences at the University of Amsterdam in 2012, initially. And along the way, around my second and third year, I had my doubts about the study program whether it suited me, because biomedical science is really a course focused on lab work and doing research within the biomedical context. And then I switched to biology to become a biology teacher, so eventually I did get a bachelor's degree in biology.</p> <p>After a gap year, I started doing a master here at Utrecht University, the Master Science Education and Communication, the two-year program to become a teacher in the STEM field.</p> <p>Follow-up question: And then what exactly was that motivation [to become a teacher]?</p> <p>Actually in those years when I was still doing biomedical sciences, I once took a small 4-week course. It's called the orientation to teaching, where you do sort of a one-month internship at a school. You teach a few classes, teaching activities and you also get to know learning theories, pedagogy, all that comes along, but in a kind of compact form. I went to my old high school with my previous biology teacher. And then I actually noticed at the first lesson 'ah, this is something I really like'. This is something I get much more energy out of, where I thought 'I need to have that social connection with young people, with young adults, to give them great things to learn', about biology than in my case. But mostly just that working with teenagers. I thought that was really cool. As challenging as they can be, sometimes they can be very stimulating and also very funny and inspiring and I learn a lot from them.</p> <p>And when I had taken that subject, then I actually switched everything and went all out to go to biology and then eventually to do the teacher training after that. Because I thought, yeah, you can also do it with biomedical, but yeah, if I knew I wanted to be a biology teacher anyway. Why wouldn't I switch right away?</p> <p>"Yes, indeed I think that, that course was also very low-key. It was only 4 weeks, so it was not like I commit myself immediately to 1 big internship or something like that for six months and I</p>

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	<p>really liked that orientation to education. That way I still got acquainted with education without having to spend 30 credits, half a year, just to get acquainted. I also worked at a homework institute and there I saw other aspects of teaching, supervising small groups, things like that. And I think that combination of experiences showed me how beautiful and fun teaching can be.”</p> <p>You just mentioned what you did at Utrecht University just now or that you did, which is about students in school? Maybe you can talk a little bit about that of what it is and what you did there.</p> <p>“Right. Yes definitely. Student op School (Students at School) is a project of Utrecht University. It kind of came about during the COVID lockdown periods, where there was a lot of demand for more personal support for students in a digital way, because teachers who had to switch to digital education overnight and still noticed, or schools noticed anyway, 'oh, we can't really see all the students well or give them the attention they deserve'. So then there was a lot of demand for personalization. The university anticipated to that with this 'student at school' project, in which students initially started offering digital support to students at various schools in the Utrecht region. Then what student at school did was mainly the kind of matching process. So students sign up with student at school with 'I want to provide educational support, I am available then and then for these subjects' and we then make the connection with the schools. So the schools have a question of 'oh, we specifically want chemistry, or we specifically want physics on those and those days' and we then link them together.</p> <p>In addition, because students at school is linked to the university's teacher training program, we also offer our students a crash course, where the students are introduced to various didactic tools, what to look out for in students who have a bit of motivation problems, for example, how do you deal with that? Yeah, kind of scenarios like that. And eventually after COVID that continued and now, they're fortunately students mostly at schools. So it's really students at school and a bit less digital, where students don't just give tutoring or in small groups yes kind of small lessons, but always yes, low-threshold and with small groups, so that they don't get in front of a whole class right away. So that they can still get acquainted with teaching and think 'Yes, this is really something cool that I want to do.' That, of course, is what we hope all those students think of 'oh yes, teaching is something I want to do.' But it's also a fun side job for them, fun experience working with teenagers and yes, they also see the different sides of teaching. So not only the teaching</p>

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	<p>side, but often they are also employed to help with curriculum development or teaching activities and also the somewhat smaller jobs, such as grade administration and grading. That's all part of it, so yes, they do get a kind of behind-the-scenes view of how things work in secondary schools.”</p> <p>Follow-up question: And your role within that, what is that exactly?</p> <p>“My role is that of project leader, so last year I was project leader of the student at school. What exactly does that entail? I was mainly responsible for matching, so connecting those students to those schools, expanding the school network, so contacting new schools, asking if they want to use students and also thinking with them how they can use those students. And also making this project itself sustainable. So how can we make long-term connections with schools that we're really in schools and really that students just kind of become a permanent part of a school. Yes, for the rest, looking at the long-term vision of this project. How can we develop this so that this will last for years? And I also worked with similar projects and businesses throughout the Netherlands through ‘student inzet op school’ (student engagement at school). That's a somewhat larger network where similar initiatives are connected, like PAL Amsterdam, for example: personal assistant to the teacher at the UvA/VU. That also exists a bit longer, it is also in that cooperation. So yes, it has all sides. It also has administrative sides, but especially linking students is very cool. I have given the crash course myself a few times, also together with the teacher training program. Yes, I myself am upper secondary education qualified teacher, so I can also give those, also know what you encounter as a teacher or a student in a school. So yes, I have given those as well.”</p> <p>You first talk about that orientation to education, one of those short courses you once did in your training. And now this enthusiasm about getting students to at least temporarily support a school for a while. There seems to be some kind of overlap in that approach.</p> <p>“Yes, indeed I think that, that course was also very low-key. It was only 4 weeks, so it was not like I commit myself immediately to 1 big internship or something like that for six months and I really liked that orientation to education. That way I still got acquainted with education without having to spend 30 credits, half a year, just to get acquainted. I also worked at a homework institute and there I saw other aspects of teaching, supervising</p>

Teacher/case n°	4
	<p>small groups, things like that. And I think that combination of experiences showed me how beautiful and fun teaching can be. And yes, that approachability. I also wanted to pass that on to the students now who come to the school, some students who work 4 or 8 hours a week, one or two half-days. Yes, because they often study in addition. But then that way they still get acquainted with teaching, without it being a very big step right away. They don't have to teach right away either, so they can just watch. Okay, how does that work in small groups or in one-on-one tutoring? Is this something for me? So yes, I also wanted to offer that opportunity to yes actually hopefully the next generations of teachers."</p>
<p>Is he/she planning to change their position? If yes, which position and why?</p>	<p>Yes how nice, because a lot of things come together there. I also see enthusiastic talk about this. You are going to quit, though. Why are you quitting? "Yes I am. Well I'm quitting. Yes, I get that question more often lately. No, I'm quitting because so this year I still worked at my school, at the fourth grammar school, and they were busy with the formation looking at next school year and then they said well, we want to put you back in front of the class Martijn, if that's possible. And then I thought about it and then yes, after some time of reflection, I found out that yes especially working with the teenagers that that is really my passion. Just being in front of the class. Yes feet in the earth maybe even, that that attracts me a bit more. So that is why I am going to make the switch to teaching more, so from next school year on I will be in front of the class a lot more. I'm going to be teaching almost the entire undergrad biology, almost all the first and second grades, so that's a lot of fun and I'm really looking forward to that. And transfers this project leadership to the yes, the next project leader. We're actually in the middle of that right now. I still do have, yes, I still hope that this all this project will develop further and I also still really believe in it. But yes, for me it is now time to be a bit more, yes, in front of the class. That attracts me more."</p>
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>What would you give a prospective biology teacher, [who] might also come in on your route or who knew right away that they wanted to be a biology teacher, what would you want to give a young person like that to stay on course or make the right decisions?</p>

Teacher/case n°	4
	<p>“I think what's important, especially in that first year or maybe the first few years, is also a part self-protection. As a teacher, you can get very excited very quickly and say yes to a lot of things, but that first year or those first few years as a teacher are really quite tough. I mean, for many of your lessons for your different year layers, you're still kind of building a foundation, a kind of foundation of materials that you can reuse over the years. But in those early years, you're still building all that up. Sure, you can ask section members "oh, do you have another fun activity, or do you have a PowerPoint for this?" but yeah, you always want to put your own spin on it anyway. Your own flavor of teaching. I think it's especially important to have a little bit of self-protection and to say, okay, I'm not going to teach too many different year groups in the first year or take on too big an appointment, because that can also put off new teachers. And yes, I do have stories of peers who actually after their first year or first 1.5 years because of that think oh, I'm not going to go into teaching after all, because it's just too hard. But I think, if you build it up gradually and if you set well-defined frameworks of these are the tasks that I will take on in my first year, without immediately going into all kinds of committees or things like that, then you can make very nice routes for yourself to eventually become the teachers you want to be.”</p>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>Because you work there together with a number of colleagues in biology, is there a biology section? “Yes there really is a biology section. I have 3 other biology colleagues and there's also a teacher in training that's running with us this year.” “For the rest within our section, we often put in our development time for development days. We have had 3 such days this year where we are really developing multi-year plans, but also where we are also very much exchanging our expertise. A little more intense than just at a section meeting, for example, because those are more the things of the weeks, things of the day. But really those long-term things. These can come forward on such a meeting [development day]. We now want to bring back much more tangible biology starting next year. We noticed that after the lockdowns, we relapsed a bit into very classroom teaching, explaining things in front of the class, and that we noticed that we have all kinds of great models, great labs, all kinds of expertise, but we don't really use it enough, so we had a lot of exchange in that area. Okay, what can we do with this subject? Do you have any fun practical ideas? Like, for example, an earthworm that shows what peristalsis of the intestines looks</p>

Teacher/case n°	4
	<p>like. So you can translate that back to each other as well. So yeah, those are kind of the type of developments, I would say.”</p> <p>Follow-up question: And what about the coordination with the other science subjects, is that is that heavily concentrated on each other or are you different sections?</p> <p>“I would say we really are a little bit more separate islands, so we are a separate section though. What we do cooperate with quite a bit is the geography section. That's also because in class 5 we have a field trip to Texel, where the students have to get a kind of school exam grade. They do a kind of their own research, a little project which is both geographic, they do a soil boring and look at the different layers of soil, and also biological, where they look at the especially the vegetation that grows in the area and then try to make connections with that. Okay, what about the soil versus the vegetation, is there a correlation in that, causation in that? So there [with the geography section] we do have quite a bit of collaboration with that. But with the other science subjects, unfortunately, not so much. There is a will but yes, not as much room, as there often is.”</p> <p>Do you also have NLT [nature, life and technology] as a subject then?</p> <p>“No, we don't have NLT as a separate subject. We do have in the first gives our school astronomy so that as kind of a separate subject. Yes, a kind of basic physics and astronomy you get then, so that's a bit more special but other than that? No, not an NLT subject.”</p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>What would you give a prospective biology teacher, [who] might also come in on your route or who knew right away that they wanted to be a biology teacher, what would you want to give a young person like that to stay on course or make the right decisions?</p> <p>“I think what's important, especially in that first year or maybe the first few years, is also a part self-protection. As a teacher, you can get very excited very quickly and say yes to a lot of things, but that first year or those first few years as a teacher are really quite tough. I mean, for many of your lessons for your different year layers, you're still kind of building a foundation, a kind of foundation of materials that you can reuse over the years. But in those early years, you're still building all that up. Sure, you can ask section members "oh, do you have another fun activity, or do you have a PowerPoint for this?" but yeah, you always want to put your own spin on it anyway. Your own flavor of teaching. I think it's especially important to have a little</p>

Teacher/case n°	4
	<p>bit of self-protection and to say, okay, I'm not going to teach too many different year groups in the first year or take on too big an appointment, because that can also put off new teachers.</p> <p>And yes, I do have stories of peers who actually after their first year or first 1.5 years because of that think oh, I'm not going to go into teaching after all, because it's just too hard. But I think, if you build it up gradually and if you set well-defined frameworks of these are the tasks that I will take on in my first year, without immediately going into all kinds of committees or things like that, then you can make very nice routes for yourself to eventually become the teachers you want to be.”</p> <p>And the relationship with teacher education. In your school, other than of course Student At School which may also play in your school, are there other things that then show a relationship with teacher education?</p> <p>Yes, we are a training school, where we do have quite a lot of trainees, in our biology section we have one right now. But yes, we have something like 10 to 15 interns walking around the school all the time, so in that way we do have a do have a connection.</p>
<p>What would he/she need to keep on growing professionally?</p>	<p>Yes, then you are a biology teacher. How do you work on your own professionalization of your teaching for content and pedagogy, everything that comes with it?</p> <p>“You have from the schools the Esprit schools foundation, which is where we our school falls under, courses are offered. And every year you can choose courses there to develop in certain areas. These are often slightly more general themes, which any teacher can come across. So for example, how do I deal with students who are highly sensitive? We have courses like that.</p> <p>For more subject content, I go to the NIBI Conference, for example, to attend all these workshops on certain biology topics. That is always an inspiring day, or two days it is actually, from which you can get quite a few teaching ideas. For example, I learned a lot about how certain lichens can be indicators of how good the air quality is in a certain area. So yeah, that's something that I wouldn't have come across so easily on my own. So yeah, kind of a combination of a the NIBI conference and courses that are offered there from the foundation.</p> <p>For the rest within our section, we often put in our development time for development days. We have had 3 such days this year where we are really developing multi-year plans, but also where we are also very much exchanging our expertise. A little more intense than just at a section meeting, for example, because those are more the things of the weeks, things of the day. But</p>

Teacher/case n°	4
	<p>really those long-term things. These can come forward on such a meeting [development day]. We now want to bring back much more tangible biology starting next year. We noticed that after the lockdowns, we relapsed a bit into very classroom teaching, explaining things in front of the class, and that we noticed that we have all kinds of great models, great labs, all kinds of expertise, but we don't really use it enough, so we had a lot of exchange in that area. Okay, what can we do with this subject? Do you have any fun practical ideas? Like, for example, an earthworm that shows what peristalsis of the intestines looks like. So you can translate that back to each other as well. So yeah, those are kind of the type of developments, I would say."</p>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>I know from math, that there is also a lot of sharing still through websites and so on. Is that the same with you guys. Or how do you guys approach it?</p> <p>"We do have websites that we consult sometimes, such as Bioplek or Biologiepagina. These are websites where there are also activities for teachers, but we often refer to them for students as well, because there is also a lot of material there for students, such as practice tests. But I don't really use websites right now where I can exchange live things from teachers. Is kind of something that I also think of oh, I would like that more.</p> <p>I know that there is a biology club between the grammar schools in Amsterdam, but it hasn't been very active since COVID, so we should breathe more life into it and then we can exchange more actively. But no, I don't use any other websites at the moment."</p> <p>"For the rest within our section, we often put in our development time for development days. We have had 3 such days this year where we are really developing multi-year plans, but also where we are also very much exchanging our expertise. A little more intense than just at a section meeting, for example, because those are more the things of the weeks, things of the day. But really those long-term things. These can come forward on such a meeting [development day]. We now want to bring back much more tangible biology starting next year. We noticed that after the lockdowns, we relapsed a bit into very classroom teaching, explaining things in front of the class, and that we noticed that we have all kinds of great models, great labs, all kinds of expertise, but we don't really use it enough, so we had a lot of exchange in that area. Okay, what can we do with this subject? Do you have any fun practical ideas? Like, for example, an earthworm that shows what peristalsis of the intestines looks</p>

Teacher/case n°	4
	like. So you can translate that back to each other as well. So yeah, those are kind of the type of developments, I would say.”
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	
Which concrete suggestions of improvement did he/she have?	
Which elements of the platform did he/she find most interesting/useful?	<p>Those "career profiles" [on the platform] that people find interesting to look at. That's a question for you though, would you recommend that to yourself or your colleagues or prospective colleagues to, 'oh, you should watch some videos, because then you'll understand it for possibly a possible career switch, but also again that prospective teacher.</p> <p>Oh yeah, sure. If there's some kind of nice umbrella video or a clear website. I would recommend that to, say, my intern. Or suppose I come across a teacher who says, of yes, 'I don't know if education is quite it,' or 'maybe I want to combine it,' I would definitely reference that. Is just nice to have a nice overview of what you can actually do. Especially because some teachers do have a kind of tunnel vision of 'oh, I did teacher training, so the only thing I can do is be a teacher'. But yes, you learn so much in that training, but also from standing in front of the class. These are all skills that you can really apply in all kinds of fields, even outside of school.</p>
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	
How he/she finds the career section of the platform (what is good, what is missing)?	

Teacher/case nº	4
Which suggestions for improvement he/she has regarding the career part?	
How has his/her view about the teachers' career changed in anyway due to the platform?	
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	-
How he/she finds the competence section of the platform (what is good, what is missing)?	
Which suggestions for improvement he/she has regarding the competence part?	
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	-
How has his/her view about teacher collaboration changed?	-
What did he/she find most useful to support teacher collaboration?	-
How he/she finds the collaboration section of	-

Teacher/case n°	4
the platform (what is good, what is missing)?	
Which suggestions for improvement did he/she make regarding the collaboration part?	-
Any additional comments that he/she made about the platform:	-

Case number: 5

Country: The Netherlands

Teacher/case n°	5
Age	44
Gender	female
Pseudonym	Sandra Bullock
Background information: <ul style="list-style-type: none"> Motivations and goals as a teacher Teaching referents School description and previous experience (only for in-service) 	<p>Why did you decide to become a teacher?</p> <p>I wanted to pursue a PhD, but did not find a PhD position consecutive to my studies.</p> <p>Previous experience with the vo age group (summer camps, meetings, lectures).</p> <p>Did introductory course during biology studies.</p> <p>I had decided during my graduation in biology to pursue a PhD. Back then, teaching was second choice. However, I also got some visibility on teaching jobs and then thought: then I will also get that qualification. With that qualification, I started applying for jobs in education and then also succeeded within a month or so. In 2003, this was. That was basically half a job, in secondary education, and in addition to that I started doing teacher training. I think that also worked out because I did have experience with the age group (through summer camps, coaching assemblies, giving lectures and also tutoring). So I did have some experience</p>

Teacher/case n°	5
	<p>with the target group, despite not having my qualification yet. And, I had also done an orientation course during my studies: orientation to the teaching profession. All in all, I rolled into teaching this way.</p> <p>Are you from a teacher's family?</p> <p>Yes. My mother has been a teacher trainer for most of her career (in college: health science. She has also been someone who always shouted that I should become a teacher, because she thought I was talented when she saw me tutoring or things like that. My sister did pabo, then university studies and then various teaching jobs, including in mbo. And also a grandfather, an aunt and a cousin who are all in primary education, etc. So yes, it is a bit of an education family.</p>
<p>General Information regarding teaching: career and professional development and collaboration</p>	
<p>Current position, school</p>	<p>Just changed positions : so I will answer the question while thinking of what I did in secondary school.</p>
<p>Teaching experience/professional development of the teacher</p>	<p>That was a school in In the province, not in a big city (Druten in Gelderland). That had a long travel distance for me at the time, too, because I still lived in Utrecht. I was in upper secondary ('havo/vwo'). There was not much support for starting teachers.</p> <p>How would you describe your school? Not supportive. We decided - as new teachers - to change this culture, and started to design new materials for upper secondary (biology and with relation to other disciplines).</p>
<p>Why he/she decided to become a teacher?</p>	<p>When I came back to the Netherlands it was clear that it would be hard to continue in my academic work. So I decided to switch to education. And of course, this was also influenced by my 'educational roots'.</p> <p>And suddenly there was a position as a teacher trainer biology in Rotterdam, so I started with this new challenge, and that was good for me and my career. There were the right 'degrees of freedom' and a team of colleagues.</p>

Teacher/case n°	5
Is he/she planning to change their position? If yes, which position and why?	Well, after 8 years at the teacher training institute in Rotterdam, I just started at the Freudenthal Institute (Utrecht University) as a teacher trainer and coordinator, so I will be glad to stay there now for a couple of years, and not changing immediately,
What are the main barriers for teachers' competence development from his/her side?	This negative experience I had in the start of my career is something to be avoided. What you need is support from your colleagues, and if that is missing it will be a hard time, especially the first years.
What are the main challenges for teachers' collaboration from his/her side?	The main challenge was to survive with this 'young-teacher-unfriendly culture'. We survived (and I am still very happy when I meet my colleague with which we could stand this strange situation).
What are the main challenges for teachers' career development from his/her side?	You have to be strong to take some 'degrees of freedom' in your career. Don't be frightened for a new step, because a new step can cause another new step! This makes your career inspiring.
What would he/she need to keep on growing professionally?	For Sandra it sounded 'easy' to switch every other 5 years or so. Because she also has this interest for the 'academic side of biology' she is not restricted to education alone and this makes here flexible. Also this new position now in the Freudenthal Institute (with also coordinating tasks for the pre-service teaching program) is a new challenge for her.
What would he/she need to improve their collaboration with other teachers/colleagues?	This open attitude that you learn when you change positions is an advantage for yourself, but also for your colleagues.
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	Especially the videos are interesting, to understand the 'story behind a professional'.

Teacher/case n°	5
Which concrete suggestions of improvement did he/she have?	This platform should be integrated in a dutch platform (for example vohonetwerken.nl).
Which elements of the platform did he/she find most interesting/useful?	
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	Saskia was interviewed herself. A motivating part of this platform is that you can also use it for your students in the pre- and in-service training/
How he/she finds the career section of the platform (what is good, what is missing)?	
Which suggestions for improvement he/she has regarding the career part?	Please collect more video/interview
How has his/her view about the teachers' career changed in anyway due to the platform?	
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	-
How he/she finds the competence section of the platform (what is good, what is missing)?	News must be news (not old).

Teacher/case nº	5
Which suggestions for improvement he/she has regarding the competence part?	
Collaboration	
In which way did the platform inspire/motivate him/her to for collaboration with other teachers?	-
How has his/her view about teacher collaboration changed?	-
What did he/she find most useful to support teacher collaboration?	-
How he/she finds the collaboration section of the platform (what is good, what is missing)?	-
Which suggestions for improvement did he/she make regarding the collaboration part?	-
Any additional comments that he/she made about the platform:	-

Reporting on key issues: evidence collected and responses to research questions

The Netherlands

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
Which elements of the platform did teachers find the most interesting or useful to know about different career pathways related to the teacher profession?	The videos are supportive in showing career options. They show authentic persons, situations and decisions	<p>Case 1. "The career examples (both video and a short description) can be very supportive for new but also 'career-changing' teachers."</p> <p>Case 3. "Maybe that could be added, because I did see SLO, which is very nice, and of course there are the educational publishers, and the cito is included with the video of a testing expert. It is indeed positive that these are career paths that you could take as a teacher to become active elsewhere"</p>
In which way did the platform help teachers to explore different career pathways related to the teacher profession (mentoring, school management, educational administration...)?	All participants know the different national options for career change (curriculum development, assessment, associations of teachers, etc.). By spending time to look at those career options the teacher get more reflective on those options. Some of them already have changed positions in this area.	Case 4. "I was already aware of career options, did change myself. The platform is helpful to tell this story to other teachers"
Are there any aspects of the 3c4life platform that can be improved in terms of encouraging teachers to explore different	It is suggested to add the 3C4Life video career examples to a bigger (National) platform, in order to get more exposure and	Case 5. " This platform should be integrated in a dutch platform (for example vohonetwerken.nl)."

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
career pathways related to the teacher profession?	more examples. We need a broader set of examples.	Case 1. "Interviews still are very few on the platform. And concerning content (competences) I missed the math"
In which way did the platform motivate teachers?	The classroom materials are motivating for seeing new opportunities to structure your lessons	Case 4. " You should expand it with more teaching materials." Case 2. " You guys are doing a really good job. It gives the teacher as much freedom as possible, as I have seen with some materials already for example about windmills. " Case 3. " Is just nice to have a nice overview of what you can actually do."
How views about the teaching career have changed as a consequence of the platform use?	No real changes, sometimes a hint to add something.	Case 2. "Add a video about a career for teachers at The Board of Tests and Examinations (CvTE), this they can do in combination with their teaching for 1 day a weekuu."
Which elements/resources of the platform are especially interesting to develop particular skills and competences relevant for the teaching profession nowadays?	-	-
Are there any aspects of the 3c4life platform that can be improved in terms of supporting the development of useful teaching competences? Do teachers miss any relevant aspect in this respect?	The platform could give special 'accents' to career options, for example that a teacher gives recommendations to other teachers.	Case 3. " This career change (joining a national curriculum committee) professionalized me more than my courses, a master I've done before, or whatever, so I can recommend that to everybody to do that at least once in your career."

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
		Case 5: "You have to be strong to take some 'degrees of freedom' in your career. Don't be frightened for a new step, because a new step can cause another new step! This makes your career inspiring."
How did the platform support teacher collaboration? Why? Which elements/features of the platform support the building and development of communities of practice? Which elements were best appreciated by teachers in this respect?	Collaboration elements did not support teachers but connecting this section to other institutions might help.	Case 1. "Maybe it is better to link it to teacher education institutes, or teachers' associations such that people can more easily find and access it. Because it can be of course nice that you can ask questions such as: how does this work for you? what are your best experiences etc.?"
How do teachers' views about teacher collaboration have changed as a consequence of the use of the platform?	No changes	
Do teachers miss anything in the platform to support teachers' collaboration? Do teachers have any concrete suggestions to improve the platform design in terms of promoting teacher collaboration?	A broader perspective of examples	Case 5. "Please collect more video/interview" Case 3. "What I myself am very much looking for are always again people to contact. I was also thinking about the kind of profiles that are there, which I find quite interesting. Please add an e-mail address, so that you can contact that person."
Is there any other relevant aspect you would like to discuss in relation to the 3C4life platform?	The platform can be interesting for use in education.	Case 3. " A motivating part of this platform is that you can also use it for your students in the pre- and in-service training"




3C4Life
Career Guidance, Collaborative Practice
and Competence Development

Partners' case study report

TURKEY

According to the project description, any partner should report about 5 cases to provide an in-sight into how the platform has been used by different teachers in any country. We assume that the implementation of the platform (how it was promoted and adapted) is similar for all the cases reported by any partner. If you consider that your responses to the table below will vary depending on the individual case being reported you should provide a different table for any case.

Please, respond to the following questions to illustrate how the platform has been promoted and adapted in your country:

Questions	Partners Responses: TURKEY
<p>1. When and how was the teach4life platform promoted in your country, and how successful was this from your point of view?</p>	<p>The platform was introduced in our country in September 2022. The platform was mostly promoted through different platforms on social media. Hacettepe STEM & Maker Lab and STEM PD, social media accounts, were used as the main promotional tools. However, the Ministry of National Education, the project's local partner, also promoted the project through its network. Teachers who follow our social media accounts or other teacher network platforms with high membership also shared our flyers, which had a snowball effect. The promotions were successful because we received over 600 applications to participate in the implementation process of the teach4life platform. There were many teachers outside of our main target group of STEM teachers who wanted to participate.</p>
<p>2. What kind of adaptations have you made to the 3C4Life platform for its use in your national context? Why?</p>	<p>We did not make a large-scale adaptation in the national context. The most important issue that we call transformation is the choice of career opportunities, and other alternatives could be career opportunities for teachers in our country. Still, while including career opportunities, we tried to choose the career opportunities that teachers have the least idea about and that are the most popular in our country. This is the biggest adaptation we have made on this platform, and we tried to give a structure that is both interesting and inspiring to teachers.</p>
<p>3. Have you added new/different materials/examples? If your answer is yes, Which ones and in which way are they different from the international version? Describe them.</p>	<p>Unlike the international version, we can only say career opportunities and these career opportunities are also planned to fit the local context. Another difference was in terms of the questions for communication in the collaboration section. We organized the questions on the platform and made them more interesting for teachers in our country.</p>

Questions	Partners Responses: TURKEY
<p>4. Have you offered the 3C4Life platform in the context of an official teacher professional development course? If your response is yes, explain the characteristics of the course (number of maximum participants, number of hours, existence or not of specific support and following up by teacher educators, etc....).</p>	<p>We did not offer it in the context of an official teacher professional development course, but there were professional development sessions that we organized ourselves. We organised these sessions on the 3rd and 5th of the month when the platform was first used. These sessions were scheduled as online sessions. Participation in the training held in parallel sessions was provided in 3 groups. The maximum number of participants was over 150. We did not offer any special support or follow-up. We only provided support via e-mail to teachers who had specific questions after the training.</p>
<p>5. How have you encouraged and monitored the use of the platform by participants?</p>	<p>We shared social media images and key messages prepared by the project team at certain intervals. Apart from these, we sent e-mails at least once a month using the mailing list, we created with the teachers involved in the project. We organized online sessions and shared the links and passwords of these sessions on the platform. We selected the examples we used in each session from the platform and showed where they were located on the platform.</p>
<p>6. Indicate key dates when you performed actions to promote the use of the platform (social media posts, platform workshops, strategic meetings...)</p>	<ul style="list-style-type: none"> • 2022-09-15 is the first post we announced on the teach4life platform from our social media account, so we shared the name of this platform for the first time with our target audience. At the same time, since this post included a Google link to get involved in the project, it received a lot of interaction. • The date 2022-12-05 is the date we started sharing online about the project. The entire content of the December 5 session was about the project and platform promotion. • 2022-12-06/07 is when we organized career sharing sessions and especially invited the people. We shot career videos and made them interact with the participants. • On 2022-12-12/13, we held a competency sessions meeting. • On 2022-12-14, we organized a session for cooperation and an idea exchange platform.
<p>7. Have you suggested particular paths when exploring and using the 3C4Life platform? If your response is yes, explain which ones and why.</p>	<p>We suggested different ways for participants to explore the platform for each section. For example, for the competency step, we suggested that they use the existing activity suggestions and share the situations they encounter in their classrooms with us and other participants in the project. We told them they plan activities similar to those in the headings in that section.</p>

Questions	Partners Responses: TURKEY
	<p>For the collaboration dimension, especially in the international platform part, we mentioned that communicating with teachers in other countries can motivate them more. It can be a good way to create a network to find partners or participate in projects. In these suggestions, we aimed to make teachers see that the platform is not a static structure and has dynamic content. At the same time, we tried to show that the platform is more than just a place to enter once.</p>
<p>8. What measures were taken to initiate collaboration in the forum? How successful were they, and why?</p>	<p>To start the collaboration dimension, we asked what kind of questions teachers wanted to find answers to, and we included those questions on the platform. We tried to answer the questions on the platform, but we were not successful in using the platform. We tried to explain this in the individual case studies section.</p>
<p>9. How have you ensured the number of evaluation questionnaires before using the platform, 3 months after and 6 months after starting to use the 3C4Life platform?</p>	<p>Our strategy here was to create a mailing list of volunteers at the beginning of the project. For this, we evaluated the participant applications and obtained a large inventory. We then sent e-mails to this group for the pre-test and intermediate tests. For the 6-month evaluation, in addition to the mailing, we stated that those who filled out the last questionnaire should send an e-mail so that participation certificates could be issued after filling it out. This way, we motivate the participants to check who filled it out and who did not. Although the number decreased each time, we could reach enough participants.</p>
<p>10. How have you selected participants for the 3C4Life case studies?</p>	<p>When selecting the participants, we paid attention to a few criteria, the first of which was that they had completed all the questionnaires, and the second was that they actively asked questions or commented during the online sessions. The third criterion was to be in different age categories, so we tried to collect data from other age groups.</p>

Description of individual cases in Turkey

Include all the relevant information to characterise the teachers participating in your national case studies. **Fill one form for each of the 5 teachers** participating in your national case studies. Any partner should provide **5 forms** corresponding to any of the cases (any form will be considered a case).

You can use your own knowledge about the teacher and all the information you collected about him/her before and during the interview (see the templates provided for these purposes).

Case number: 1

Country: TR

Teacher/case n ^o	1
Age	38
Gender	Female
Pseudonym	Emel
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School Description and previous experience (only for in-service) 	<p>Emel's most important motivation as a teacher is to be useful to her students and to teach someone something. Emel explains this situation as follows:</p> <ul style="list-style-type: none"> • <i>"My motivation as a teacher and also the point that led me to become a teacher is to be able to teach someone something, and seeing the spark in children's eyes makes me happy."</i> <p>Her goal as a teacher is to communicate well with her students and feel that she is useful to them. What motivates her the most is the positive feedback she receives from her students. She sees her goal as getting positive feedback from her students. Emel explains this situation as follows</p> <ul style="list-style-type: none"> • <i>"...no matter how well equipped we are, we are only as much as we can pass on to the child in front of us."</i>

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	<p><i>The biggest wish of a teacher is to feel in the eyes of the student that they can pass the moment when they can pass them. To be able to arouse that excitement in them. To catch the look of "Teacher, I understand you."</i></p> <p>There were people in Emel's family who were teachers. She was especially impressed by the fact that her uncle was an academic. In addition, the fact that she thought some of the characteristics of the teaching profession were suitable for her explains the reference point that led her to teach. Emel explains this situation as follows:</p> <ul style="list-style-type: none"> <i>"There were many teachers in my family; for example, my aunt was a teacher. My uncle was an academic, and he was very interested in us. He was also my guardian; I guess he influenced me very much. Besides, I like a bit of order in family life. Teaching and education seem more organised to me, and I think it is easier to plan."</i> <p>Emel's current school is quite large, and she works in a school that needs to be exam-oriented. She emphasised this, especially a few times. Because her previous school experiences were more exam-oriented, she expressed that she is happy to have a different school structure in her career. While explaining this situation, she also compares the perception of schools in small cities with those in big cities. We can see this situation in Emel's statements below:</p> <ul style="list-style-type: none"> <i>"The places I worked in before were exam-oriented. In 8th grade (the transition class from middle school to high school), a student's success was determined by the quality of the high school they attended. For us, this was our target limitation. The child who got the best question and score was like the best student in our eyes. This also has an effect here. I worked in a small city for the first five years of my teaching career, and the parents there were more ambitious. They aim to move their children's education somehow lives to big cities. But when I came to my current school, this changed greatly because now I teach in a metropolitan city. And now I have less ambitious parents and students. I am talking about this ambition in terms of exams. This is a more project-based school than the school I work in now. The children are more relaxed, and they are given a direction according to the child's potential."</i>

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General Information regarding teaching: career and professional development and collaboration	
Current position, school	<p>Emel is a science teacher working in a private secondary school. The school she works at is located in Ankara, the capital of Turkey, and the school has both secondary and high school departments. She stated in our interview that there are about 100 teachers and a student group of 700-800 students.</p> <p>The school's structure is far from the project-based and exam-oriented system, as can be understood from the quotation in the background information section. Considering that the school is a paid private school, it is a place where middle and upper-middle socio-economic level students are located.</p>
Teaching experience/professional development of the teacher	<p>Emel has a master's degree and is an experienced teacher who has worked in many places. She explains her professional development as follows.</p> <ul style="list-style-type: none"> • <i>"After graduating from university, I went to Ereğli for my master's degree. At that time, my family was living in Bartın. At the same time, I started working in a private school to remove the internship, and I worked there for five years. During this time, I completed my master's degree. Then I got married, moved to Istanbul, and worked in Istanbul for a year. Then we moved to Ankara, and I started working at the school where I work now, and I have been working at this school for five years."</i> <p>Emel has never had a different career experience other than teaching, and she has always worked as a teacher.</p>
Why did they decide to become a teacher?	<p>We can mention a few factors in their decision to become a teacher. Firstly, she thinks that the teaching profession is suitable for her character. Emel explains this as follows:</p> <ul style="list-style-type: none"> • <i>"...in terms of family life, I like a bit of order. Teaching and education seem more organised to me, and I think it is easier to plan."</i> <p>As the second factor, it can be said that there are people in the family who set an example for her and that they are influential in her decision:</p> <ul style="list-style-type: none"> • <i>"... there are many teachers in my family, and my aunt is a teacher; my uncle is an academic. ...I think they also influenced me."</i>

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	<p>As the third and perhaps the main source of motivation, she stated that "... <i>the point that led me to become a teacher is to see the sparks in children's eyes and to feel that I can teach them something</i>". The effective satisfaction of teaching was effective in her choice of education.</p>
<p>Is he/she planning to change their position? If yes, which position and why?</p>	<p>Yes, she wants a change like that. She wants to work as a STEM Coordinator. She also had career interviews about this. The reason is that she wants a change in her teaching life, and she sees it as a new challenge and wants to develop herself in this field. She mentions that the school interviews she made also awakened this spark in her. Emel describes this situation as follows.</p> <ul style="list-style-type: none"> • <i>"I went for an interview at a school. The school wanted to meet with me under the name of STEM coordinators. Of course, the STEM coordinators needed to be clearer in their minds, and they would not pay for the labour I would give in terms of salary. After all, we do not do our profession for money, but there is still money as a tool. For this reason, our interview ended negatively, but this career opportunity aroused excitement in my mind. It resembled a spark from a different place. I was also very happy when I saw the STEM coordinator position as one of the career opportunities on the Teach4life platform. By following the platform, I started to think about what a STEM coordinator position is and what needs to be done. I am now looking for opportunities to work in the STEM Coordinator unit in new job interviews. I want to advance my career in this field because it offers me a new challenge and excites me."</i>
<p>What are the main barriers to teachers' competence development from his/her side?</p>	<p>She thinks the curriculum load should be reduced to increase the teacher's equipment. She states that this situation increases the teacher's workload and does not leave gaps for teachers to improve themselves. She thinks that programmes that do not allow teachers to add something from themselves also prevent teachers from developing their competencies. Because she states that adhering too much to the curricula creates the impression that there is no need for teachers to reflect their competencies in the classroom, we can deduce these from Emel's statements below:</p> <ul style="list-style-type: none"> • <i>"The teacher should withdraw a little bit from the lesson, detach a little bit from the curriculum and create their curriculum from their point of view. Each teacher's curriculum will, of course, be a framework,</i>

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	<p><i>there will be order, but the teacher should have a touch to these. When Teacher Emel enters the class, she should have an area where she can use her competence, and she should be able to say that Teacher Emel was teaching this lesson or she gave this example; it is more important for me and will be more permanent. If this happens, teachers will be more motivated to improve their competencies."</i></p>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>Emel's teacher explains the obstacle in front of cooperation in terms of STEM. In particular, she emphasises that this cooperation situation needs to be understood in schools regarding STEM education. She mentions that science teachers are more prominent in the STEM dimension, so establishing cooperation and managing these collaborations is seen as the obligation of science teachers. He states that this increases the workload of science teachers and makes it difficult to establish cooperation. She explains this situation with the situations she experienced in her school:</p> <ul style="list-style-type: none"> • <i>"When STEM was mentioned, it was as if they always put science teachers forward. When we want to cooperate with mathematics and technology teachers, they do not consider it their work. My teacher sees it as the science department's work and sees some workload on himself. We create a little extra trouble by being a stakeholder in this. You know, it is difficult as if I have to force math's into this system for it to be a system, it is difficult to force technology into it, but there is no engineering. It shouldn't be like let me put engineering in here. When I look between you and that programmed, there are two mathematics groups; some have engineering, some have science, and some have art. It should be like this. You know, it should not only fall on science teachers. When it is left to one branch, the others must favor it. Cooperation should be established correctly; that is, not only science teachers or engineers should be responsible for establishing this cooperation, but all colleagues should embrace it as a whole."</i>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>According to Emel, the main difficulty in front of career development is that teachers' workload needs to be lowered, and they cannot orientate towards other career developments. She states that teachers need time to think about career development, stop for a while, and think about what they are doing and want to do. While explaining this</p>

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	<p>situation, she talks about her own life and the quarantine process.</p> <ul style="list-style-type: none"> <i>"Teachers have to work hard everywhere. So, you must turn to something the same. If I hadn't stayed a little behind and looked at what we were doing, I would have continued my career as a teacher who stations and prepares students for projects. Actually, with this pandemic, everyone took a breath. He said what are we doing. They realized that children's belief in education has changed. Children realized that they could also access information on the computer. Schools have actually changed a little. Such things as intensive education, education, education the intensity of the curriculum does not pass to children anymore. For this reason, teachers now also want a different perspective. Believe me, we have a 40-minute lesson when I give private lessons. Twenty minutes we put a current problem. We talk to the child about a current problem. In other words, there should be a need for a career change. Change and the desire to keep up with this change means career development for me."</i>
<p>What would he/she need to keep on growing professionally?</p>	<p>Emel needs some certificate programmes to grow professionally. To direct her career planning in the right direction, she wants to receive training from the right places and prove her competencies with the certificates she receives:</p> <ul style="list-style-type: none"> <i>"I need to find programmes such as a certificate programme that gives this thing like STEM coordinators. Not every university does these. There are schools called STEM Schools. I don't know if these places are right or how much they provide the right training. I don't want to be like that. I am a teacher; I can do this, not learn that. No, what is the basis, the essence of this work? Yes, I try to do it in every way, but for example, question software like yours excites me a lot. Yes, I can find topics. The other day, for example, I was writing a question to a publishing house. I thought of the tents in the earthquake. The insulation of these tents is similar to using daily life at home. But I can't make such a connection; it stays in the air. Something is missing for me to make these connections. I want to take the road to complete them."</i>

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<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>Emel considers the situation of increasing cooperation more in the school context. She tries to explain this through school management and unit supervisors, especially regarding STEM teachers. At the same time, she emphasizes that STEM coordinators in schools should encourage cooperation. Because he thinks that STEM education, which has an interdisciplinary structure, should have collaboration by its nature, she explains this situation as follows.</p> <ul style="list-style-type: none"> • <i>"We are all open to cooperation as teachers and have a unit head. The biggest task falls on these unit heads/coordinators. Unit heads should not only call the science teacher and tell them that such and such studies should be carried out, but they should also explain how the connection with which disciplines will be established, the distribution of tasks, etc."</i>
<p>PLATFORM teach4life</p>	
<p>Describe the general experience using the 3C4life platform.</p>	<p>Their experiences using the platform are mostly associated with the competence and career sections, and she has a little experience with the cooperation dimension. In general, she expresses himself as follows for this question:</p> <ul style="list-style-type: none"> • <i>"I was more interested in the career and competence section and can discuss those parts. The career area was really good for me, and I had question marks in my head. Yes, there are such career opportunities, but no one supports anyone. You need help finding information about career opportunities, or no one wants to share it. I often used the competence dimension while creating lesson plans or writing questions. I have 5th, 6th and 7th-grade students, and I benefited greatly from it while doing activities for them. "</i> • <i>"I haven't experienced the cooperation dimension much, but it will be useful, especially if people share their classroom practice experiences."</i>
<p>Which concrete suggestions of improvement did he/she have?</p>	<p>She emphasizes that there should be areas where teachers can participate more actively and share documents, and she thinks that the accessibility of the collaboration section should be easier. We can summarize their suggestions in their own words as follows:</p> <ul style="list-style-type: none"> • <i>"We can actively be there and be accessible. For example, I am picturing it in my mind, but there</i>

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	<p><i>could be an area where a few teachers can make a common lesson plan or syllabus. In other words, we need an area to upload. We need to see many examples because more information in books is needed. Learning styles have become very different now. Yes, we need to use and address more than one learning style while explaining a subject in a classroom."</i></p>
<p>Which elements of the platform did he/she find most interesting/useful?</p>	<p>The area he found most useful was the career dimension. Because she mentioned that she needed help finding the necessary information about career opportunities, she emphasized that people with social connections can access them more easily. Still, people like her who do not have strong ties have little information about these situations. She explained this situation as follows:</p> <ul style="list-style-type: none"> <i>"In the career section, it is especially valuable for people from the field to share their experiences. Yes, I do studies, I do this, I do that, but I look at people with rich social development and wide networks and see that they work in different places. Because they know where these opportunities will come from and are well informed."</i>
<p>Career:</p>	
<p>In which way did the platform inspire/motivate him/her to advance their career as a teacher?</p>	<p>Emel especially had the opportunity to compare the career opportunities she had been thinking about for a long time and in between, and she says this was very good for her.</p> <ul style="list-style-type: none"> <i>"For example, I was torn between R&D or STEM coordinators because there are education coordinator-ships and R&D units in schools. What kind of differences exist between these units, and how can I work in these units? I was able to understand better what they expect from me."</i>
<p>How does he/she find the career section of the platform (what is good, what is missing)?</p>	<p>She thinks that career diversity is good, but there should be more than one example in those fields. She believes that more than one example is needed, not a single sample. At the same time, she finds the questions asked in career videos quite successful.</p> <ul style="list-style-type: none"> <i>In other words, career planning may have more different examples. So that unit was introduced only through that person. For example, I am researching those who do this job, but I come</i>

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	<p><i>across a Yasemin teacher in the STEM coordinators. I can't find anyone else. For example, the questions you ask for the videos are very good. I watch them over and over again. What did we have to do? What did we do? So is our teacher in the R&D unit. The questions you ask are very good. Interviews with people with different career plans can also be made and increased.</i></p>
<p>Which suggestions for improvement he/she has regarding the career part?</p>	<p>The main recommendation here is to increase the number of examples in the career sections.</p> <ul style="list-style-type: none"> <i>"Interviews with people with different career plans can be conducted and increased."</i>
<p>How has his/her view about the teachers' career changed in any way due to the platform?</p>	<p>She states that she realised what she should do as a teacher and should continue her education to keep current. She thought of doing a doctorate after her master's degree but then gave up. Now she says that she should continue her connection with the university and has also started initiatives to do this.</p> <ul style="list-style-type: none"> <i>"Yes, I am a teacher, but I asked myself, what else can I do? I think that I should continue my education to be able to follow the agenda. I am currently preparing for the language exam. Yes, I can do a doctorate; I am researching how to do this. I have added it to my career planning, but I am undecided about what to do in that field. If I progress from science teacher to STEM coordinator, I should probably complete my doctorate in science. But if I move to the management unit, I should probably turn to education, management and supervision on my list."</i>
<p>Competence</p>	
<p>In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?</p>	<p>In the school where Emel works, some special cases are used in preparing questions. She mentions that the competence dimension inspires her to create a context for these questions.</p> <ul style="list-style-type: none"> <i>"In our school, we prepare questions with nine temperament types, and teachers prepare the booklets individually. Every year, we used to prepare questions according to the children's learning level or the type of temperament of the</i>

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	<p><i>students that year. For this reason, the questions here are very close to me, and I use them in my lessons."</i></p>
<p>How he/she finds the competence section of the platform (what is good, what is missing)?</p>	<p>She likes the content in general but criticises the fact that some activities are for higher-level classes:</p> <ul style="list-style-type: none"> <i>"Some things were for high school; my students could only produce a little. The part where I asked, how can I associate this with the child's daily life or how can I associate this with the lesson and the learning outcome was a bit high level. I needed help adapting it to the secondary school level. But it was very nice to make drawings, to make graphs, to make the connection with thinker can."</i>
<p>Which suggestions for improvement he/she has regarding the competence part?</p>	<p>She argues that there should be activities for lower groups, and there may even be some kindergarten examples. Because she thinks that the foundations related to STEM start to be laid there:</p> <ul style="list-style-type: none"> <i>"There should be a lower group, and these things should start from kindergarten. My children are three years old, and I am doing activities with them at home. A new generation is coming with a very different way of thinking, and it may be a course in which we create STEM sub-skills for the future. Children's STEM sub-skills should start from a slightly smaller group, such as recognising some things, experimenting with experiments or data, tabulating something about data, criticising graphics, etc... A new generation is coming with a very different way of thinking, and it is a course in which we create future-oriented STEM sub-skills for them. The STEM sub-skills of children, areas such as recognising things, experimenting with experiments or data, delivering tables, and graphical criticism, should start from a slightly smaller group. In the future, maybe in ten years, the system will be a completely different system again. In other words, a brand-new system will be formed when we look back."</i>
<p>Collaboration</p>	
<p>In which way did the platform inspire/motivate him/her to</p>	<p>She thinks it will be useful, but he mentioned that he could not use it much.</p>

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collaborate with other teachers?	
How has his/her view about teacher collaboration changed?	She doesn't have a clue.
What did he/she find most useful to support teacher collaboration?	—
How he/she finds the collaboration section of the platform (what is good, what is missing)?	<p>She summarises why she cannot use it and what she thinks is missing as not being suitable for accessibility and ease of use:</p> <ul style="list-style-type: none"> • <i>"Maybe because it doesn't open very quickly on the platform, or if there are areas where you can easily log in to the teach4life sections from your phone, like a chat area, like a telegram. In other words, if those areas could be opened much more easily, unfortunately, accessibility can sometimes hinder us."</i>
Which suggestions for improvement did he/she make regarding the collaboration part?	<p>As a suggestion, Emel states that the forum structure in the collaboration platform is no longer used, and instant communication is more popular.</p> <ul style="list-style-type: none"> • <i>"The old fashion is gone; that's what we call old fashion. It should provide quick access like the current telegram style, and it would also be useful to have it so you can see who is writing live directly."</i>
Any additional comments that he/she made about the platform:	<i>"First of all, being included in such a platform was very nice. To be accepted just when I was in such a search. It was very nice to be guided and guided in this search. That place inspires me a lot. There are places like this saved on my computer; there is something to travel, and it comes out. I go in and out of there during the day. I get help from there while preparing lesson plans. It has been a nice place for me; I hope we can bring its continuity. So I thank you for including us in this platform."</i>

Case number: 2

Country: TR

Teacher/case n ^o	2
Age	37

Teacher/case n ^o	2
Gender	Male
Pseudonym	Serkan
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School Description and previous experience (only for in-service) 	<p>Before starting his career, Serkan had yet to dream of becoming a teacher. However, he chose this profession with the encouragement of his family members, who are teachers. Serkan describes this situation as follows</p> <ul style="list-style-type: none"> • <i>"My dream was not to become a teacher, and my goal is to become a doctor. But I was not successful in the exam, and according to the scores I got, my uncle influenced my preferences. My uncle was a chemistry teacher and made that choice, and he even preferred Samsun, the hometown where my uncle worked. In other words, at this point, people did not know you too much at this point, they did not have guidance at the point of career development, they had a way of guidance according to your score, and unfortunately, they did not have a say."</i> <p>Later, he mentions that a lecturer at the university influenced his teaching career, and it especially affected his perspective on the profession. While explaining this situation, Serdar uses the following expressions.</p> <ul style="list-style-type: none"> • <i>"...I learnt from a university lecturer that career development is something called career development. That is, there is a master's degree. How to do it? Thanks to him, he was a great pioneer, and we learnt the history of science education from him. We talked about educational pedagogy, and it gave us self-confidence."</i> <p>As teachers, their goal is not to stop learning, that is, not to stop improving themselves and to keep up with the development of children:</p> <ul style="list-style-type: none"> • <i>"You have to keep up with the developments somehow. Otherwise, you will collapse somehow. You have to do this much better, especially in science and art centres like mine, where children come to a second school. I have to be interested in artificial intelligence, I have to be interested in robotic coding, and then I have to be interested in scientific studies with every passing development. Inevitably, this keeps me learning here, which keeps</i>

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	<p><i>me alive. Let's not call it the ideal teacher in science and arts, but it keeps you alive and active. You feel obliged to meet new information every moment."</i></p> <p>The teacher's current school and previous experiences:</p> <ul style="list-style-type: none"> <i>"I work in a BiLSEM that does important work in its province and region. There is a good institutional presence, and people's demands are very high. I mean, normally, let me give an example like this, maybe in terms of finding the answer you are looking for, we are a central high school. Still, even students from the districts of Artvin, that is, from the districts of another province, see us, even though there is a science and arts centre there. However, it is in another district, in another district, in a nearby district, and the student comes to this institution by driving an hour and a half. In other words, it is the most intensive, most demanded BiLSEM."</i>
<p>General Information regarding teaching: career and professional development and collaboration</p>	
<p>Current position, school</p>	<p>Serkan works as a science teacher in Science and Art Centres, a school for gifted students.</p> <ul style="list-style-type: none"> <i>"I work at the Science and Art Centre, which has grown rapidly since its establishment. We provide education to gifted students here. According to the last updated number, the number of students in the school was close to 500. Later, when BiLSEM opened in the districts, the number dropped slightly more."</i>
<p>Teaching experience/professional development of the teacher</p>	<p>Serkan has been teaching since 2012. Before that, he worked as an educational counsellor for two years. During his teaching career, he worked as a science teacher at the secondary school level. For the last four years, he has taken his career to the next level and worked on a project basis with small groups of gifted children in science and art centres where teachers are selected and assigned through an exam and portfolio.</p>
<p>Why did he/she decide to become a teacher?</p>	<p>Serkan states that he decided to become a teacher not after completing his undergraduate education but after completing his graduate education. He mentions that it took some time for her career awareness and the idea of becoming a teacher after graduation:</p>

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	<ul style="list-style-type: none"> • <i>"After my master's degree, especially after the graduate courses, I decided to take the KPSS (teaching assignment exam) to do this job. I have been a teacher for ten years. I was leaving aside those waiting periods. Because I graduated in 2008, it has been about 15 years since the point of my professional entry. I had to wait until 2012, so I waited four years, to start teaching, but I'm glad I did. If I hadn't waited for that maturation process, I might not be in the position I am in now. Career consciousness, the concept of consciousness, is very important. In other words, it is very valuable to be able to do things willingly, deliberately, to be able to direct, to be able to take steps towards your goals."</i>
<p>Is he/she planning to change their position? If yes, which position and why?</p>	<p>Yes, Serkan wants to change his career. First, he wants to change his career by doing a doctorate and becoming an academician. However, even if he cannot become an academician, he wants to stay in his current position as a BİLSEM teacher. He does not want to return to the old standard school education structure.</p> <ul style="list-style-type: none"> • <i>"First of all, I only want to do a doctorate. However, I want to do this doctorate at a good university where it will give me something. With that kind of doctorate, I want to become an academician if the opportunity comes my way. I don't want to return to an exam-centred working environment and stay in the same turmoil because I am tired of it. If not, I want to continue my position at the Science and arts centre. But my future goal is to get my doctorate and become an academic staff member or not; it matters little. One day tomorrow, a research and development centre will be established, and we will be needed, and we can take part in the work we do there. In other words, I must follow the opportunities here."</i>
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>He analyses the obstacles to teachers' competence development in internal and external dimensions. As external factors, he mentions the opportunities offered by the place and region where you teach and the availability of people who can set an example for you. As internal factors, he explains that the person's own will and desire are not in the direction of development:</p> <ul style="list-style-type: none"> • <i>"I think external and internal factors are effective here—the position of the region where you teach. If</i>

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	<p><i>you are working in Bayburt, Gümüşhane or Rize, very few environments can develop your career and very few people you can talk to. So let me put it this way, it will be like repeating it to you. If it weren't for Mustafa's teacher at my university, maybe I wouldn't have considered a master's degree. If he hadn't given that courage, such conscious people must have somehow influenced you in your environment. In other words, it should arouse some interest in you. The supervisors at our school or in our province are also responsible. In other words, the more these conferences, congresses and academic individuals interact with teaching and teachers, the more willing the person is to improve themselves. "</i></p> <ul style="list-style-type: none"> <i>"But as an internal factor, if there is no desire in the teacher, you cannot get what you want no matter which door you open. First of all, a teacher should desire to develop themselves well. They can't force me to get a master's degree if I don't want to."</i>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>Serkan makes interesting points in terms of this cooperation. He expresses that he is uncomfortable with the collaboration relationship for gaining benefits. He says that since teachers sell their materials for money, even the desire to collaborate or help someone is done from a pragmatist point of view. He sees this situation as a real reason in front of establishing cooperation.</p> <ul style="list-style-type: none"> <i>One of the things that disturb me the most is that, unfortunately, pragmatist philosophy has started to dominate among teachers. Documents are sold for money; there are shares. It is as if everything is money; everything is something. Also, my teacher, as a result, I take responsibility for the course, and I cannot be aware of everything. What are the sources that I cannot be fed? Academic journals, theses, etc. Sources. These have either paid access or limited access by the author. As such, how can we be aware of them and establish cooperation?</i> <p>He thinks that another obstacle to cooperation is colleagues' jealousy and selfish behaviours. Serkan explains this situation with a comparison with teachers in Europe.</p> <ul style="list-style-type: none"> <i>"In other words, when we compare it with Europe, there are richer practice groups, and there is more interaction between teachers and more sharing. But the reason why the two teachers do not cooperate</i>

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	<p><i>is a little jealousy and selfishness. The understanding is that I am doing a study, but I want to give it to only some. Now, I have done a study like this, and it is still going on at the moment. I invite the science teachers working in the schools where I live to BiLSEM for 2 lesson hours. Let them make the lesson plan, see it themselves, and experience it themselves; how are the students here? And I prepare lesson plans for them and will collect them and share them openly. I mean, my problem is that someone who needs it should come and benefit from it because one day tomorrow, they will also want it. At least let it be used fresh."</i></p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>Serkan believes that the biggest obstacle to career development is the need for more intrinsic motivation. He mentions that to overcome this difficulty, one needs to overcome the limits one set for oneself and come out of one's shell.</p> <ul style="list-style-type: none"> • <i>"First of all, a teacher should have the desire to advance their career. No one forced me to get a master's degree, and I realised I couldn't enter the classroom, so I said I had to get a master's degree because I didn't think my qualifications were sufficient after graduation. But now, even after becoming a teacher, I worked non-stop and added many things to my career. So I want to stage what I can do myself. Because if teaching is a stage centre, it should know how to ask questions, answer questions, design, manage, and entertain when necessary. For this reason, while my profession is suitable for this, while science is suitable for this, I try to try one more every year to see my limits. The most important thing here is that it is a problem related to the teacher getting rid of his shackles."</i>
<p>What would he/she need to keep on growing professionally?</p>	<p>He doesn't have actually a clue. He thinks he needs guidance.</p> <ul style="list-style-type: none"> • <i>"I couldn't really ask this question of yours to myself. Why couldn't I ask it? Because I don't know how to ask this question and how to answer it. It's like a colour comes in front of you, and you have no knowledge about this colour, and you try to name it. For example, we need workshops, training, and support. But where will we apply, and how will it be about this issue? So the training you provide is very valuable. I had the opportunity to try many career opportunities in Teach4life, but I am still</i>

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	<i>determining what I need for professional development from now on."</i>
What would he/she need to improve their collaboration with other teachers/colleagues?	<p>Serdar states that teachers' attitudes towards sharing and cooperation should change. He thinks that this should be generalised as an understanding:</p> <ul style="list-style-type: none"> • <i>"Fellow teachers need to understand that sharing enriches everyone and realise that it is possible to grow not through jealousy or selfishness but through teamwork. Because individualism takes us to a certain point, cooperation will take us to the next level."</i>
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	<p>He states that the information on the platform is useful for teachers and appeals to teachers of all levels. However, he mentions that he already has information about the opportunities, especially in the career opportunities section, which prevents detailed use for him.</p> <ul style="list-style-type: none"> • <i>"I did not use it in detail, but I looked at the chain and the videos. After that, I got information about the studies but needed to find a way to use it in detail. It isn't easy to get detailed information, especially about career opportunities. Sometimes we cannot ask questions to people with experience with these issues, and we are hesitant. The reason is, would they be interested in us? Will they share this with us? The more we push this, the better. The point I am happy about is that it is very valuable to have a project on this subject. At least in terms of utilisation at all levels, it is very good that elements and elements have been put in place. "</i>
Which concrete suggestions of improvement did he/she have?	<p>He thinks that career videos should only include individual interviews with more detailed questions, especially about how they overcome problems at turning points in career development.</p> <ul style="list-style-type: none"> • <i>"There could be a higher version for career development. In other words, the problems in the places where these people have passed can be mentioned instead of just individual interviews. For example, as far as I listened to the videos, it is mentioned that they passed some exams, but what questions were not asked in those exams? They always ask us to be a teacher at BİLSEM; they say what will be asked in the interview; what do they</i>

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	<p><i>evaluate me as? Now all our friends are asking, or the following question comes up. Also, when I came to BİLSEM, this place was not like a normal school; most people were surprised at what I would do because they came unprepared. These should also be mentioned in the interviews."</i></p>
<p>Which elements of the platform did he/she find most interesting/useful?</p>	<p>He found it interesting that the selection of people in the career section was from the field and that people suitable for the authentic context were selected other than the types of teachers we are used to seeing everywhere. He thinks that he feels close to himself while listening to the people in those videos and that it would be useful for everyone, not only to include people who have made a name in the field.</p> <ul style="list-style-type: none"> <i>"The most interesting part of the platform is this. First, when explaining careers, you tell something by listening to the people in the field, not with a stereotypical narrative. Those career examples are really good. I was surprised because people who do this kind of work usually give examples of people who have made a name for themselves and are a bit utopian. They are usually called and created. Don't go and tell me about Elon Musk; I'm Serkan; I can't be Elon, I'm aware of that, but I can be Ayçin [an example we use in the videos on my platform]. Like this, I can at least go through the paths that Ayçin travelled. I was very impressed by these video works that bring people with similar and close goals closer to each other. So you are not selling pipe dreams."</i>
<p>Career:</p>	
<p>In which way did the platform inspire/motivate him/her to advance their career as a teacher?</p>	<p>He could be more motivated because he has experienced the current career opportunities to a certain extent. Still, he expresses that he needs content about what can be advanced career goals for people with careers on the platform.</p> <ul style="list-style-type: none"> <i>"I have experienced these career steps (Project manager, DENEYAP Instructor, BİLSEM teacher, STEM Coordinator, R&D Coordinator), and I need other career opportunities. In the second version of this project, we need suggestions for people with these careers."</i>
<p>How he/she finds the career section of the platform</p>	<p>He generally states that the career landscapes are correct, but the managerial/administrative part still needs to be completed.</p> <ul style="list-style-type: none"> <i>"We are in the education ecosystem, and the careers that can be done are clear. However, the</i>

Teacher/case n ^o	2
(what is good, what is missing)?	<i>administration and management part could have been more detailed."</i>
Which suggestions for improvement he/she has regarding the career part?	<p>Serkan emphasises that educational administration and leadership have sub-dimensions and different development processes. He suggests that these can be explained by interviewing people who have reached those points and explaining their past experiences.</p> <ul style="list-style-type: none"> • <i>"Unfortunately, there are not many correct examples in our country's educational leadership field. Educational administration is a completely different situation. Its area of specialisation is something different, and it is still being discussed at the point of leadership position in education. In other words, how should we be a leader in this career if we can be a leader? In other words, is academic or psychomotor development enough, or what should we be able to bring from the past at the point of leadership? It is a bit empty, but it is a gap that can be filled."</i>
How has his/her view about the teachers' career changed in any way due to the platform?	<p>He states that he is motivated by seeing people who are trying to get to the position he is in and the related content and those who are doing better work.</p> <ul style="list-style-type: none"> • <i>"...I also realised that many people have reached what we are doing now. We are doing a valuable job; we are on the right track. But I also learnt that some do better, and we can get there as soon as possible. We need to be able to work for this. Therefore, people determine their position. You know how much I know about this career development within my population and ecosystem".</i>
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	<p>In the competence dimension, he mentioned that the context-based learning section inspired him. However, it revitalised his desire to prepare content similar to the scenarios there, suitable for his realities.</p> <ul style="list-style-type: none"> • <i>"I was particularly interested in authentic contexts. Because now, even modern exam questions are based on these contexts. It is difficult to create a good context, and it motivated me to see the dynamics of this."</i>
How he/she finds the competence section of the	He states that the examples given in the competence dimension are good, but the fact that the context is more in line with the

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platform (what is good, what is missing)?	<p>structure in Europe rather than the Turkish context needs to be included.</p> <ul style="list-style-type: none"> <i>"In the competency section, some situations were contrary to the distance-proximity relationship in teaching. For example, what? Instead of addressing a water problem in my own country in my region, I talk about the pollution in the river in North Carolina. I cannot give this to the student. Or you will say, change this. Let's say make it the Çoruh River. But it is not like that; it is very obvious that it is translated. The problems or scenarios of Europe are more dominant. There are solutions there. They cannot transfer this to the Turkish language. The child remains a stranger there; they feel it. Because the child says, "I live here. My problems are more important. He is right. Because when I go and explain even global warming from here, some things are effective. I mean, when I talk about it elsewhere, yes, he understands it, but it is not suitable for the structure of the authentic context."</i>
Which suggestions for improvement he/she has regarding the competence part?	<p>He states that the activity examples should be transformable and not gain a completely different structure when transformed.</p> <ul style="list-style-type: none"> <i>"In this type of work, scenarios, words, discussions, and socio-scientific issues are more specific to us. For example, we can talk about nuclear. The nuclear in Akkuyu. How much have we discussed, and how much is there in the work? I know there are scientific theses, but how much have we been able to bring this down to the students, or how much do we, as teachers? We need to carry these better in our own hands first and be able to represent them."</i>
Collaboration	
In which way did the platform inspire/motivate him/her to collaborate with other teachers?	<p>He mentions that he is not very familiar with the cooperation point and is not interested in that part enough. However, he notes that the more active the cooperation issue is, the better it will be for teachers.</p> <ul style="list-style-type: none"> <i>"I am not very familiar with the part on the point of cooperation, so let me tell you that I have yet to look at it in detail. It would not be right to say something about something I do not know or have not"</i>

Teacher/case n ^o	2
	<i>mastered. But let me put it this way; the more this cooperation is reflected in us as teachers, the better.</i>
How has his/her view about teacher collaboration changed?	No change.
What did he/she find most useful to support teacher collaboration?	--
How he/she finds the collaboration section of the platform (what is good, what is missing)?	--
Which suggestions for improvement did he/she make regarding the collaboration part?	<p>He states that for cooperation, creating the same virtual or real environment is necessary where teachers can meet each other.</p> <ul style="list-style-type: none"> <i>"I don't know if you will organise a teachers' conference to continue this project, but it would be very good if you planned something like that. Because there is a need for an environment where teachers can see each other and exchange ideas instantly."</i>
Any additional comments that he/she made about the platform:	I am glad that you took part in such a study. Being in such a study was very valuable, and I enjoyed it.

Case number: 3

Country: TR

Teacher/case n ^o	3
Age	48
Gender	Female
Pseudonym	Semra
Background information: <ul style="list-style-type: none"> Motivations and goals as a teacher Teaching referents 	<p>Semra teaches at Science and Art Centres (BİLSEM), where gifted students come after school and work on projects. For this reason, she explains her perspective on teaching by likening it to a scientist. Her motivation as a teacher is to contribute to the country, the world and humanity with the</p>

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<ul style="list-style-type: none"> School Description and previous experience (only for in-service) 	<p>projects and products they make with their students. We can summarise the teacher's activities at school as not only getting students to a certain degree but also making them better equipped for life. Semra expresses this situation as follows.</p> <ul style="list-style-type: none"> <i>"The teacher should first consider how a good scientist should be. It is necessary to go to that motto. So what does a good scientist mean? What can we do for our country, what can we do for the world, what can we do for other living things? It is good if it targets these; otherwise, a project comes out as good or bad. But how much will it be able to provide that quality rather than quantity? This should be the priority in teaching."</i> <p>Semra has been a teacher for 21 years, and her teaching experience includes many different public schools. She has no other work experience other than teaching. However, she completed her master's degree. She also started her doctorate education but left it halfway.</p>
<p>General Information regarding teaching: career and professional development and collaboration</p>	
<p>Current position, school</p>	<p>Semra is a teacher at Science and Art Centres (BİLSEM) where gifted students come after school and work on projects. For 3 years, she has been working as a Maths teacher in this place. The school where she works is the first institution in Turkey established to provide education to gifted students. Therefore, it is a prestigious and preferred institution and Semra loves working there:</p> <ul style="list-style-type: none"> <i>"I started in 2002 at a ministry of education. I worked in a classroom for a while. I mean professionally, I have been a maths teacher for 21 years. The institution I work at is Yasemin Karakaya Science and Art Centre, Turkey's first science and art centre. I have been working here for the last 3 years, but I was trying to enter here in the first 10 years of my career, but there was not as much teacher recruitment in these institutions as today. Frankly speaking, I did not know much about how to work here. In my master's degree, a friend of mine said I worked there for a year. I said how, how does it work? Also, BİLSEM is a place that attracts a lot of</i>

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	<i>interest from parents with its exams. I work with pleasure."</i>
Teaching experience/professional development of the teacher	Semra is an experienced teacher who has worked as a secondary and high school mathematics teacher after graduating from secondary mathematics teaching. To improve herself, she completed her master's degree and started a doctorate programme but left it halfway through. She has worked in many different schools, such as exam-oriented and project-centred schools.
Why did he/she decide to become a teacher?	<p>Many factors contributed to her decision to become a teacher: the role models around her, her admiration for the profession, her love of mathematics, and the teachers she encountered in her school life. Semra summarises this situation as follows.</p> <ul style="list-style-type: none"> <i>"When choosing the university exam, I had teacher acquaintances in my family circle whose hard work, honesty and patience I admired. Yes, I liked teaching. I enjoyed explaining something, teaching, and helping that person spiritually. I liked mathematics, I liked it over the years, not so much in primary school, but I started to enjoy it in the fifth grade.</i> <p>Semra states that there are also affective factors that affect her becoming a teacher:</p> <ul style="list-style-type: none"> <i>"I saw the struggles of older teachers. When they told me about the living conditions of teacher school graduates and village institute graduates in the first place where they worked, I was also very impressed by them. The books I read may have been effective, and sometimes a teacher's clothes may have been effective in your choice. Because at that time, there was no such career or guidance."</i>
Is he/she planning to change their position? If yes, which position and why?	<p>Semra does not plan to change her current position but would like to be more useful to her students by completing her PhD:</p> <ul style="list-style-type: none"> <i>"I would have liked to finish my PhD, but my circumstances did not allow me to do so. Home, I mean, my special situation is also related to home. I would have liked to finish it with the changes in my school and work lives. Because it is a doctorate degree in national education, there is a small financial difference. The more I can adapt to that method, the more it will benefit the children. The methods and practices there are also</i>

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	<p><i>different. For example, I need to learn more programming languages if I want to do a thesis on pure mathematics for children. So for next year, in in-service training, if appropriate, I will try to spend my time learning languages such as C+ or Python if it does not interrupt the children's lessons. Because even in a lesson plan of some problems or questions, such languages can be included heavily. Especially for high school level, it is necessary to be constantly and closely involved with these programming languages."</i></p>
<p>What are the main barriers to teachers' competence development from his/her side?</p>	<p>Semra mentions time management as the main challenge in the teacher's skill development and the need for constant attention to learn some subjects, which takes time:</p> <ul style="list-style-type: none"> • <i>"For example, I tried to learn Thinkercad when I became interested in design, but it interrupted my time management. Yes, WhatsApp has entered our lives more and more. There are other tools in our lives, and I have to follow these. You can't say that I don't use social media. I need better time management, but I need to be more successful. For example, I should have been more determined to finish some things because it was low. At the same time, dwelling on a subject for a long time is necessary. For example, I had seen authentic learning in in-service courses, but when I did not focus on it, I could not get into it much. But some things settled in my head when I became more interested in this project."</i>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>According to Semra, the biggest obstacle to cooperation is the character structure of people. She mentions that association is possible with anyone open to cooperating and learning from others.</p> <ul style="list-style-type: none"> • <i>"You can't work with every colleague; everyone has a different perspective on this issue. Some of them really want to do something together, and some think I know better than you and I don't need to work together. The obstacle to cooperation is related to personality traits and how they perceive cooperation."</i>
<p>What are the main challenges for teachers' career</p>	<p>Semra thinks that the main challenge in career development is the high workload and the fact that people need more time to develop themselves for a career change.</p>

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development from his/her side?	<ul style="list-style-type: none"> <i>To advance in my career, I need to get some educational degrees. For example, I need to finish my PhD, but I need more time for PhD courses or writing a thesis because of school and my home life. As such, you try to maintain your current position. Because you don't have the time and energy to chase career opportunities, without them, unfortunately, career development cannot happen."</i>
What would he/she need to keep on growing professionally?	<p>Semra thinks that she needs to reorganise her working environment and reduce her workload for her professional development. She explains this situation as follows:</p> <ul style="list-style-type: none"> <i>"I need to organise my working environment. In doing so, I need to be more decisive and open, and frankly, I need to be selfish. Because when I look at my colleagues who I work with and who develop themselves, for example, they draw the word "no" more boldly. Or I don't know if it is a coincidence, but they don't get jobs or tasks. They need to recognise the school a little bit in that regard"</i>. <p>In short, she talks about the need to take time for this development.</p> <p>Apart from that, she thinks that for his professional development, she should focus more on what she focuses on and needs, not on every field.</p> <ul style="list-style-type: none"> <i>"But if everything went as in the training planning, I would put this into the process. Otherwise, it's a bit like, let me do this, let me do that, don't fall behind in this, let me do this. That may be the reason for not being able to reach a certain goal."</i>
What would he/she need to improve their collaboration with other teachers/colleagues?	<p>She thinks that people's perspectives on cooperation should change, and they should understand what cooperation means. He mentions that only some colleagues can collaborate and that both parties should be willing to do so.</p> <ul style="list-style-type: none"> <i>"Every profession works, cannot work. Obviously, everyone has a different look, a different place to look. And who? How? It also exists in adult education. For example, he came for training but is in a holiday mood. They try to turn in-service training into a holiday. Some came to learn about it, and some made claims against the person telling them. I mean, I know better than you; I do</i>

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	<i>this. In short, I work comfortably with those who want to work, but I do not work with those who do not want to work and those who make it difficult. If this perspective towards cooperation changes, more cooperation will be established."</i>
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	As a broad experience, they are satisfied with the platform and find it useful. <ul style="list-style-type: none"> <i>"The page design of the platform is very nice. I can find the things I want easily and access them easily from the menu."</i>
Which concrete suggestions of improvement did he/she have?	She states that the materials should be in a structure that can be directly used and printed in the classroom. She mentions that he cannot open them on the screen and show them from there. She notes that the activities are structured for teachers to understand the process rather than in a format that can be applied directly to the students. Semra summarises this situation as follows: <ul style="list-style-type: none"> <i>"There are some pedagogical approaches in the competence section. They are good but look like examples for the teacher to understand the event. It is not in a form that I can apply directly in the classroom, and it is only easy to use in the school with a lesson plan or student handouts. Such materials could be added."</i>
Which elements of the platform did he/she find most interesting/useful?	-
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	She doesn't see it as inspiring in terms of advancing her career. However, she liked that it offered different perspectives. She thinks it is especially effective in seeing what people working elsewhere are doing. <ul style="list-style-type: none"> <i>"The career section was good, providing different perspectives on careers. Some things were things I knew, but it was good for me to share problems in these videos or to see what was done in a different province, in a different institution, and to try to understand career changes."</i>

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How he/she finds the career section of the platform (what is good, what is missing)?	<p>The lack of opportunities to work abroad and the fact that it mostly offers career opportunities in Turkey needs to be improved.</p> <ul style="list-style-type: none"> <i>"I could not see anything about career opportunities abroad. There are such careers, but these are the parts with the least information. I am not only talking about our country. For a European teacher, Turkey is an unknown box."</i>
Which suggestions for improvement he/she has regarding the career part?	<p>She mentions that the videos in the career section should also include the kitchen part of the job. For example, having areas such as how students are motivated in projects or how to deal with project problems within the project coordinators will enable the real faces of the career to be seen.</p> <ul style="list-style-type: none"> <i>"It may be about how we can guide children in projects, but it is always about that part. I mean guidance in this sense. More precisely, there is something like this. There are a lot of project requests. There is a lot of desire to participate in competitions. How can we motivate teachers? For example, there is TUBITAK 4006 preparation. These are very recorded videos. There is TUBITAK 4004 writing. But how to motivate students? How to manage that process? I always tell university teachers around me what I see as good, bad, and good. Here, I go within the framework of what I see regarding finishing a project and a thesis. But there are other situations; there may be other situations."</i>
How has his/her view about the teachers' career changed in any way due to the platform?	<p>There was no change in teachers' views on career development.</p>
Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	<p>She thinks that the content in the socio-scientific issues section in the competence section is an element that improves her teaching. She believes that it is especially useful for supporting abstract thinking in mathematics.</p> <ul style="list-style-type: none"> <i>"It is difficult to find examples for socio-scientific topics in maths, and it is really useful to associate this with authentic contexts. Those sections were very useful for me, and I used them in my lessons."</i>

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<p>How he/she finds the competence section of the platform (what is good, what is missing)?</p>	<p>They find the parts of mathematics related to socio-scientific issues successful.</p> <ul style="list-style-type: none"> <i>"The parts where socio-scientific subjects and supported mathematics were explained were good. For example, when the child moves from 6th to 7th grade, they enter abstract mathematics and subjects related to more abstract thinking and reasoning. In fact, within the framework of K12, what are certain objectives already taught in algebra and analysis in the 6th grade in most countries? It is also in our programmes. We are pretty close. These parts are good."</i>
<p>Which suggestions for improvement he/she has regarding the competence part?</p>	<p>She states that this section can also include some things for students with special needs. In particular, Semra says that adding accessibility features can also be considered.</p> <ul style="list-style-type: none"> <i>"Yes, yes, they can be. They can be them both in terms of time and material. What about accessibility? For example, the menu could be prepared. I don't learn much, but for example, our school has students with special needs. There are not many of them, but the fact that there are not many does not mean that we ignore them. Maybe it can be related to them. Such a rich can be criticised."</i> <p>She states that including resources that students can go to in the activities can increase student use, and thus, teachers will be more likely to use them:</p> <ul style="list-style-type: none"> <i>"I am trying to remember if a measurement existed, but a research question can be given. You know, the more the child reads it, the more it comes out, and if there are things that maybe encourage the children, such as entering these sources, searching for them from here and researching this subject because teachers usually always give questions from those assessments. In other words, it can be easy to find, easy to access, easy to use."</i>
<p>Collaboration</p>	
<p>In which way did the platform inspire/motivate him/her to collaborate with other teachers?</p>	<p>Especially the fact that it was an international platform motivated Semra. She wrote something on that forum and tried to communicate with teachers abroad.</p>

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	<ul style="list-style-type: none"> <i>"The cooperation dimension has both national and international dimensions. I especially want to see teachers' practices abroad and talk to them. That's why I wrote something to the international forum. It was a bit to find a project partner. You know, when you said that we could use this place, we inevitably have many problems in terms of being a project partner for those who have ERASMUS education, that is, those who work in that field. Offering a forum in such a structure motivated me."</i>
How has his/her view about teacher collaboration changed?	She did not mention a change in this regard.
What did he/she find most useful to support teacher collaboration?	<ul style="list-style-type: none"> <i>"So that part is more. So that part and this site are more. It should be recognised because it has a very rich content. Whether it is necessary in terms of design, it is very beautifully prepared in terms of concept."</i>
How he/she finds the collaboration section of the platform (what is good, what is missing)?	<p>She states that there are few responses to what is written on the platform, which reduces motivation.</p> <ul style="list-style-type: none"> <i>"Regarding cooperation, for example, when we wanted to find a project partner, we wrote in the forum at the level of countries. But only some countries are interested or see it as extra work. It could increase the interaction there and with them, maybe with teachers abroad. In other words, they can meet with an online tool and see what they are doing."</i> <p>She thinks that the questions on the platform are not very interesting for teachers and that the structure should be moved beyond the question-answer form:</p> <ul style="list-style-type: none"> <i>"Like I said. Those forums. For example, there was no forum for education; I had opened it, you know, he says congratulations, or I want to work with such and such countries, can I find a partner? You know, the subject is very standard there, just like that. What difficulties do you experience while doing projects? Has this been effective in your career? What in terms of cooperation? You know, such questions could be more attractive to people, and they do not want to be hope."</i>

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Which suggestions for improvement did he/she make regarding the collaboration part?	<p>She thinks there is a need for more open dialogue by changing the question-answer structure. As a suggestion, she believes that the communication structure should be changed:</p> <ul style="list-style-type: none"> "They wrote about power conditions, so focused on the subject. But there are some very good questions prepared there. In other words, those questions should be answered by discussing and generating ideas. It is like a one-way conversation; there should be a mutual conversation with an application such as WhatsApp. Because teachers need such a structure."
Any additional comments that he/she made about the platform:	

Case number: 4

Country: TR

Teacher/case n°	4
Age	29
Gender	Female
Pseudonym	Ayla
<p>Background information:</p> <ul style="list-style-type: none"> Motivations and goals as a teacher Teaching referents School Description and previous experience (only for in-service) 	<p>Ayla states that her motivation as a teacher is to touch students' lives and change something:</p> <ul style="list-style-type: none"> "I can summarise my most important goal as being able to change something. In other words, changing the child's world on a small scale that day, adding new knowledge to it, and as I said, in the long run, maybe ten years, 20 years later, that child will also change the world. In other words, I am being able to touch someone and feel it. Teaching is a profession, but for me, teaching is touching a person's life." <p>Ayla mentions the influence of family members who can be a reference in her becoming a teacher and her perspective on teaching:</p>

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	<ul style="list-style-type: none"> <i>"In my closest circle, my uncle is a teacher, but in a completely different field. I teach science, and he teaches history. But yes, does it affect my thoughts? It does. Because my uncle was a teacher model for me, at least in my mind, the teacher profile I just described, I thought that yes, this is how a teacher should be, that they should touch an individual and everything should change."</i> <p>Ayla has experienced other than teaching; these experiences were also within the school but in different roles. Ayla has many different backgrounds, such as STEM coordinator, Teknofest coordinator, and Science Heroes Project coordinator.</p> <ul style="list-style-type: none"> <i>"I mean, not in terms of career; I actually did different things while teaching. Of course, these are still things related to teaching. A project coordinator was an assignment other than teaching. I worked as a STEM coordinator at my previous school. I am a TEKNOFEST coordinator at my current school. We are carrying out that process. I work with science heroes. I am one of the four executors of the project science heroes in Ankara. This is also related to teaching, but we can think of it as another experience."</i>
<p>General Information regarding teaching: career and professional development and collaboration</p>	
<p>Current position, school</p>	<p>Ayla has been a science teacher for eight years and works as a science teacher at her current school. However, besides teaching, she also works as a coordinator for students' projects. She has been working at the same school for two years. She describes her school in the following excerpt.</p> <ul style="list-style-type: none"> <i>"It's innovative. The campus is marvellous. I mean forest school. Because learning by doing and experiencing is a very valuable thing for me. You are talking about trees and being able to show trees. If we are talking about insects, I should be able to offer insects. We are talking about the sky. This is a great advantage. There is an observatory in our school. If it is talking about the atmosphere, I should be able to observe this for children. In that sense, it is the exact equivalent of learning by doing and living for me. "</i>

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	<p>The school where Ayla works is quite big and has many facilities.</p> <ul style="list-style-type: none"> <i>"In total, there are nearly 1500 students and nearly 120 teachers. Because the campus is very big, there are primary schools, secondary schools, and kindergarten. So there is a real-life logic. So, of course, we cannot control the dynamics very much."</i>
Teaching experience/professional development of the teacher	<p>Ayla is a teacher with eight years of experience. Regarding professional development, she has completed her master's degree and continues her doctoral studies in science education. Ayla summarises her teaching experience as follows:</p> <ul style="list-style-type: none"> <i>"I have taught in Doğa schools and my current institution, Ankara University Development Foundation Schools. This is my second institution, and I have worked there for two years. Regarding professional development, I completed my master's degree in science education and continue my doctorate in the same field."</i>
Why did he/she decide to become a teacher?	<p>The ability to teach something, the nature of the teaching profession, and the reasons for touching people's lives motivated Ayla to become a teacher.</p> <ul style="list-style-type: none"> <i>"When I was choosing the teaching profession, I thought as follows; I should choose such a profession that when I touch a person, I should know that I touch an institution, then a city or a country as a whole. When I evaluated it at this point, teaching seemed to me that such a profession was not a profession for me but self-sacrificing work. Now that I am in it, I realise what the right decision was and how to correct my evaluations. When we change something in a child's life, we touch it today, and we affect something from the bottom to the top. So environmental education is the simplest example of this. Excuse me, when we instil in a 5th-grade child to plant trees and not pollute the environment, it actually impacts a better future, a cleaner environment, and the world. The trees we plant here today affect the whole world as a result. In this sense, it was a profession that could touch the world by touching a single individual or 20 individuals in a class. That's why I chose it."</i>

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<p>Is he/she planning to change their position? If yes, which position and why?</p>	<p>She does not intend to change her position at this stage.</p> <ul style="list-style-type: none"> <i>"I never had such a dream, I don't know if my thoughts will change over time, but I like this. In my previous school, we worked with the National Education, and I was giving teacher training in line with their projects. We were doing activities together in the field of STEM. It was also very enjoyable to be together with the teachers. It is a very pleasant and beautiful process to touch teachers. However, since I consider it as touching a human being, I mean, there is still a matter of teaching, teaching, and touching at the core of the work, but being an administrator, that is, doing purely official work, you know, being a director, is not very much for me."</i>
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>Ayla thinks that the main obstacle to this is the person. She feels that sometimes there may be problems, such as accessing training or being in the target group, but people who want to educate themselves can overcome these obstacles.</p> <ul style="list-style-type: none"> <i>"Honestly, there are not many obstacles. I mean, individuals who want to train themselves and increase their competence can do this in any way. Sometimes there is some training, for example, only for certain teachers or academics. For example, only the problem. But as I said, although it is a bit difficult, an individual who wants to educate themselves can do so."</i>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>She mentions time problems and the need for interdisciplinary working habits as the main challenges to inter-teacher cooperation.</p> <ul style="list-style-type: none"> <i>"Actually, this is a multi-faceted question. Now, what you evaluate as a group is your time. I mean, this is valid for teachers everywhere—lack of time. Of course, we have gaps, but the fact that these gaps do not coincide with each other is the main problem. It's like when I'm free and my colleague is in class. The other difficulty is to be able to establish the logic and principle of interdisciplinary work. Cooperation is possible if the teacher has this principle and logic in place. For example, we encounter this problem a lot in social studies. However, most of our subjects are common. But when that blended, interdisciplinary</i>

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	<p><i>logic does not come out, the other person or we sometimes do not realise it. Some things could be improved at these points. If teachers in Turkey are focused on self-improvement, we can meet and get together with teachers in many parts of Turkey through projects. Social media is very powerful here. At least we can see what each other is doing. Even from the shares, we can give the results of our activities."</i></p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>She thinks that National Education policies are an obstacle to career development. In particular, they feel that career opportunities are not offered to teachers working in private schools:</p> <ul style="list-style-type: none"> <i>"Now, when I evaluate the current situation, the biggest challenge in the career ladder is the national education policies. In other words, the appointed teacher is counted as a teacher; the private school teacher is not counted as a teacher. Because today, when we look at the research units of the national education directorates, the priority is always the teachers in the state. In other words, the point I mentioned before is that I had the opportunity to train teachers. In my district, someone else was equipped to provide teacher training or had received such training. But it would never have been my turn if there was a state teacher under the same conditions. So there was such a situation."</i>
<p>What would he/she need to keep on growing professionally?</p>	<p>She thinks that his connection with someone's diversity should be continuous.</p> <ul style="list-style-type: none"> <i>Therefore, we need to be in cooperation. Because we are the people in the kitchen, and we are the ones who will apply it and say yes, it can be used; this is missing, this doesn't seem right, this does not fit. For this reason, universities should progress concerning teachers for a lifetime, rather than studying for four years, graduating, and receiving a diploma."</i>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>Ayla mentions that there is a need for platforms, projects and environments where they can interact face-to-face:</p> <ul style="list-style-type: none"> <i>"Actually, we need this. Your project is very good in this sense. Because it is a common platform and everyone can reach each other. Both nationally and internationally, this is very good. Besides,</i>

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	<p><i>these are face-to-face. Such a festival can be experienced in the atmosphere of a congress. Yes, there will be a two-day weekend, but you can come out of there with great sharing. It can be valuable both in reaching each other and in terms of sitting down and discussing properly and producing a common idea that we can do this, we can do that. These come to my mind. "</i></p>
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	<p>Her broad experiences with the platform consist of sharing and competence. She thinks that the opportunity to share is very valuable. She hopes that it can increase the ability to communicate, especially among teachers:</p> <ul style="list-style-type: none"> <i>It is very valuable to be able to share now. I don't think STEM is already very well established in our country. The right examples or good examples need to increase. In this sense, we especially need to develop sharing. I was interested in that part of the platform because it offered an environment where I could see that I was doing something wrong, or yes, this teacher was also doing something like this and thinking like this.</i> <p>Socio-scientific issues are important on the platform. She talks about his experiences with that part:</p> <ul style="list-style-type: none"> <i>"Socio-scientific is very valuable for me in this process. Because my doctoral thesis is already on this, I must help fit social sciences into STEM. If there is an activity, an activity never fits. In this sense, it is very useful and valuable because when we say STEM, it is generally engineering-based. However, STEM is different. I found the platform very useful in seeing these different subjects and being together with people who are equipped in this sense and trying to do something."</i>
Which concrete suggestions of improvement did he/she have?	<p>She sees it as a problem that there is sharing in the common country forums but not in the international forum section and that the national forums need to be richer in their language. She states that national forums can be abolished, or posts can be made in English:</p> <ul style="list-style-type: none"> <i>"Like this. As I said, these platform shortcomings are my shortcomings, which I need to learn about, but language is a serious problem. Now, the national part of the platform is very good in terms</i>

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	<p><i>of sharing, but one wonders what other countries have done, what they have shared, and what can be shared up to a certain point. But this richness of sharing only exists on a different platform. As such, cooperation is less desired. As I said, this is the missing aspect of this platform. It would be better to have all the sharing in one place.</i></p> <p>Another suggestion on the same subject is to translate the posts on national forums and transfer them to the main platform:</p> <ul style="list-style-type: none"> <i>"Actually, we usually do this now that I have been involved in many projects. That is, this happens in most projects in Turkey. But there is a language. Yes, we prepare everything we prepare in Turkish. But there is someone among us who has a good command of the academic language, so this situation conveys the process and the activities we do for the partners. To have the right transfer. And these people usually have a better command of science if the project is related to science, and if it is related to social issues, they also have a good knowledge of social use. The correspondence in other countries may be translated in this way.</i>
Which elements of the platform did he/she find most interesting/useful?	<p>Ayla found the activities in the competence section useful as they also offered solutions to the problems she had experienced with her thesis.</p> <ul style="list-style-type: none"> <i>"Both inquiry and socio-scientific are very valuable for me. Because my thesis is already on this, I need help associating social scientific subjects with STEM. If there is an activity, there is never an activity. In this sense, it is very useful, very valuable, so when we say STEM, socio-scientific issues are missing because it is generally engineering-oriented."</i>
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	<p>She mentions that she needs to be more motivated by having the information in this part of the platform.</p> <ul style="list-style-type: none"> <i>"The career section helps us to be equipped. But if I were a person who had not been involved in similar projects before, I would say yes. There is such a thing, and I would start researching. But many of the existing problems I had heard before because I had participated in similar projects. But</i>

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	<p><i>in general terms, yes, it is a very meaningful and useful career in the sense of showing the way, look, there is such a way. But that's why I have been researching for years. "</i></p>
<p>How he/she finds the career section of the platform (what is good, what is missing)?</p>	<p>She thinks there should also be career opportunities for teaching abroad or other career opportunities. She expresses this as a deficiency.</p> <ul style="list-style-type: none"> <i>"Yes, actually, some things should be shared. Many young people in our country want to go abroad right now. But there are two main ways to go as a teacher. Either we will go academically or go as a teacher appointed to the state and pass the exams. Unfortunately, there is no other way. You know, don't just go there on my own and try to get a place. I don't have much space there as a teacher; I am aware of that. Since our business partners are teachers from different countries, how should a teacher who wants to go abroad follow a path, or how can they get a place abroad? You could focus on this a little bit.</i>
<p>Which suggestions for improvement he/she has regarding the career part?</p>	<p>Ayla suggests adding career opportunities abroad.</p>
<p>How has his/her view about the teachers' career changed in any way due to the platform?</p>	<p>She sees what her colleagues do, and their career development motivates Ayla. She expresses thinking about how a similar structure can be established nationally.</p> <ul style="list-style-type: none"> <i>"This is how he motivated me. Apart from what I have just said, there is something like this in teachers who cannot fit into their shoes. I'd like to know what I should do differently, and we dive into different branches occasionally. Yes, this is a project, but there are similar platforms in our own country, and there are teachers who manage and run them. They share their lecture notes or share their written content, or share their activities. This is usually on social media, but yes, is this also a field? This is also a field. Can a platform like this be only for science teachers? If we could share among ourselves, like that forum. But could it be something strange where sharing is more essential? I questioned it, frankly. I don't know how to do it right now, but I thought about it slightly."</i>

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Competence	
In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?	<p>Ayla mentioned that the activities in the competence section were very good for her. She emphasises that reaching the right resources motivated her, especially in socio-scientific issues and STEM, where she needed help finding resources.</p> <ul style="list-style-type: none"> <i>"A person is looking for something in different fields; that's where the master's degree was a bit of a wake-up call for me because I studied social science subjects. There are few sources on this in Turkey. I can find one or two sources abroad, and I try to translate them with my tongue, but again, this is different from the logic of an event. At least I have established this as one or two events. It gave me hope. So yes, can different people come together and do what I have been trying to do for years? It made me think. It is very valuable in that sense."</i>
How he/she finds the competence section of the platform (what is good, what is missing)?	<p>In general, the competence section is Ayla's favourite part. As a deficiency, she states that activity examples, such as those in the competence section, should be shared by teachers. She also suggests that this competence section can be associated with differences from the operation section:</p> <ul style="list-style-type: none"> <i>"In this sense, since I had the most problems in the activity area, this was my first application point for the project. This was the reason for that, frankly. The following on this platform excited me most regarding competence rather than activities and events. Now we are trying to make an education. We are trying to teach by doing and experiencing; in doing so, we expect a cooperative approach from children. But to impose a collaborative approach on children, we must first be able to work collaboratively. This part of the platform excited me the most in terms of competence. Yes, there is an activity, but I can apply it, criticise it, add to it, and subtract from it. I can at least comment on my own experiences by saying, "Look, I applied it in the kitchen, but this place is not right". This mutual positive criticism is the beginning of development. People can also share if this section can be associated with the cooperation section. This can be said to be a deficiency."</i>

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<p>Which suggestions for improvement he/she has regarding the competence part?</p>	<p>She has yet to make a concrete proposal.</p> <ul style="list-style-type: none"> <i>"There is nothing much to add but nothing you can add right now. At points where the platform progresses a little more. In other words, it is a project team now that it has spread to a wider audience, and we are more limited and in-house. You know, if it spreads all over Turkey. Yes, there may be many things to be added and removed, but at least no such point attracts my attention now."</i>
<p>Collaboration</p>	
<p>In which way did the platform inspire/motivate him/her to collaborate with other teachers?</p>	<p>She mentions that the fact that colleagues give feedback to each other and that suggestions can be given about activity implementations motivates her:</p> <ul style="list-style-type: none"> <i>It is very valuable that we can give feedback to each other so that the things we call activities and research today can progress thanks to feedback. In other words, a move I have prepared may seem marvellous and may have many mistakes I have yet to see. In this sense, working together with my experienced friends and getting feedback is very valuable, and I find it very valuable and very developing.</i>
<p>How has his/her view about teacher collaboration changed?</p>	<p>She expresses that his views on cooperation have developed positively. She emphasises that this idea has also brought her colleagues together more.</p> <ul style="list-style-type: none"> <i>"It changed it like this. It brought to my mind the question mark I had just set up: We expect children to cooperate, but do we cooperate? As I said, I have been in many similar platforms and projects, but other projects have never raised this question mark before. This platform raised this question mark for me. So, the processes that the project progressed with the project, the process of those training and now we are still getting together and talking. I mean, there were no weekends, you know, from the point where we said that we could not come together due to lack of time, lack of time, or we could not come together due to lack of time, at least we took a step as a cooperative so that we could talk about</i>

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	<i>these things while having a coffee for a coffee on Saturday."</i>
What did he/she find most useful to support teacher collaboration?	-
How he/she finds the collaboration section of the platform (what is good, what is missing)?	She sees the need for sharing on the international platform as a deficiency.
Which suggestions for improvement did he/she make regarding the collaboration part?	<p>In particular, she states that STEM fields should increase communication within themselves or with teachers from other branches to increase interdisciplinary interaction.</p> <ul style="list-style-type: none"> <i>"Actually, the first thing my eyes looked for on this platform. Not only on the platform but also in our dozens of trainings. Are there people from different branches? Are there teachers from other departments? There were. There were all of them. This is very valuable. As I said, working together, an activity should be prepared as a whole of these courses since science, social sciences, and mathematics are all very related courses. In other words, they should feed each other and be interdisciplinary progress. Our education policy in Turkey, not only in Turkey but also in the world, is trying to direct us towards this. We may be taking the easy way out as teachers. Therefore, I prefer to have different branches side by side on this platform and to be in communication and interaction with various branches.</i>
Any additional comments that he/she made about the platform:	

Case number: 5

Country: TR

Teacher/case n ^o	5
Age	55

Teacher/case n ^o	5
Gender	Male
Pseudonym	Yusuf
Background information: <ul style="list-style-type: none"> • Motivations and goals as a teacher • Teaching referents • School Description and previous experience (only for in-service) 	<p>The motivation to teach comes from the desire to be a teacher. He thinks that he came to this world to be a teacher. Yusuf explains this situation as follows:</p> <ul style="list-style-type: none"> • <i>"Me, actually. I was designed for the teaching profession. Since I was little, I have loved learning by trying things repeatedly. Although I did not think with such a large memory when I was going to the teaching school at first to understand the effect of this on children, later, when I got into it, I said, you know, there is an area where a person or a plant can live, I said, this is my territory. So I would be happy here and continue to be productive here."</i> <p>Teachers aim to provide an education that will increase children's skills. Yusuf is a teacher who desires not to take part in an exam-orientated system or to prepare his students for life instead of exams:</p> <ul style="list-style-type: none"> • <i>"Let's put it this way. I am coming to my 35th year. I have had one philosophy for 20 years and love this system. I have adopted the motto "life, not the exam". I never do any work for the exam, at or outside the school. I only offer various options to help children use their skills in life. In this, I have to check the returns, just like you, that is, you have to check the return of a work you do. "</i>
General Information regarding teaching: career and professional development and collaboration	
Current position, school	<p>Yusuf has been working at his current school for 18 years. His school is a boutique school, and he works as a class teacher in a school where most workers' children come. He also works as a project coordinator at his school.</p> <ul style="list-style-type: none"> • <i>"My school is like this. It is a boutique school in the centre of Antalya. Antalya is a very touristic place, but our neighbourhood is the Fabrikalar neighbourhood consisting of 3-storey houses. It is a school where the children of workers who used to go to the factories in the neighbourhood used to come, and the municipality here has kept this the same. Since they have kept the same licence,</i>

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	<p><i>they can build 3-storey houses at most. Therefore, the number of people, that is, the number of students, stays relatively high. Since the building is not too high or too many, we have about 400 students. We run primary and secondary school together in our school."</i></p>
Teaching experience/professional development of the teacher	<p>Yusuf started teaching immediately after graduation. Yusuf, who is in his 34th year of teaching, is a very experienced teacher. In 3 different provinces and four schools, Yusuf also worked as an administrator, where he was first assigned.</p> <ul style="list-style-type: none"> • <i>"Apart from this school, I started in Diyarbakır, then Adapazarı, then Finike district of Antalya. There and the current Ministry of National Education, yes, one, two, three, four."</i> • <i>"When I first started, I worked in a hamlet in Diyarbakır. At that time, there was a department for authorised teachers, and I worked there as an official teacher for two years out of necessity. There, I realised that being a principal or an administrator was against my soul, and I continued teaching. That's why I have yet to hear of choosing a different field."</i>
Why did he/she decide to become a teacher?	<p>Yusuf's decision to become a teacher is mostly due to intrinsic motivation. The feeling of teaching and the urge to try again and again were the characteristics that made him stand out as a teacher. As a conscious choice, he first went to a teacher's high school and then became a teacher by studying at the faculty.</p>
Is he/she planning to change their position? If yes, which position and why?	<p>Yusuf has made some plans to change his career. Firstly, he aims to improve his language skills, and then he wants to write ERASMUS projects.</p> <ul style="list-style-type: none"> • <i>"I made this career plan about five years ago. I said to myself that I was very interested in STEM projects, but I also needed to improve my foreign language. I felt the need for this as follows. I went to England once. We were the first in Turkey in a project with two students from our school. I was ashamed of myself there. I said, "You are doing so much work; this must be translated into English. If there is an English language that I set myself a goal, there may be another language besides it,</i> • <i>"In a second job, to promote my school on the Erasmus platform and write a project and to</i>

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	<p><i>ensure that our students have an overseas experience that will open their horizons. We did the work. As a teacher, we went to Greece last month and realised a plan related to this. What was relevant in my career was the work I did."</i></p> <p>He also mentions that he participates in all kinds of training not only for his career development but also for the development of the organisation he works for:</p> <ul style="list-style-type: none"> <i>"First of all, my main goal is to bring the institution to the forefront as an institution. I actively participate in eco-schools, forest schools, and TUBITAK projects. It is more appropriate to improve myself by completing the necessary studies in this regard, not with my career but with the profession of our institution."</i>
<p>What are the main barriers for teachers' competence development from his/her side?</p>	<p>Yusuf tried to explain this situation through what his fellow teachers at the school saw as obstacles rather than himself. He sees the obstacles as economic reasons, the high performance required against the low wages received, and the follow-up of the developments only for the exam.</p> <ul style="list-style-type: none"> <i>"Go through friends in this school. Every economic situation related to this is effective in this regard. They have regularly offered to two themselves in return for the service. They talk about the inadequacy of the wages received. These may not be an excuse for a teacher, but this is the general opinion. Also, for some reason, since they put the touchstone for all students in the eighth grade, they only follow the developments related to that department. They neglect the developments in the lower or upper levels of education. For example, while a secondary school teacher is trying to get the highest score in a section related only to their course, another teacher wants to maximise their score. Therefore, this unity between the curricula of all courses in STEM is being disrupted there."</i>
<p>What are the main challenges for teachers' collaboration from his/her side?</p>	<p>Yusuf identified jealousy and teachers' openness to cooperation only with teachers in their field as barriers to teachers' collaboration:</p> <ul style="list-style-type: none"> <i>"A jealousy. I can say this clearly. But here, one of the biggest reasons teachers are closed to cooperation is that they only think about the departments related to their fields and see the</i>

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	<p><i>others as unnecessary. A maths teacher only compares the physical education lesson with one another. Science is more important than mathematics, but when you start life, mathematics is needed everywhere, but physical education is the intermediate department that will give you rest. Painting and music also make a big difference in terms of self-education. "</i></p>
<p>What are the main challenges for teachers' career development from his/her side?</p>	<p>Yusuf states that the main challenges in terms of career development are teachers' stopping to develop themselves and their stance against new products:</p> <ul style="list-style-type: none"> <i>"The first thing I see is that teachers stop developing themselves. Yes, you know how they say a candle should give light to the bottom of the candle, but it is not about giving light to the bottom. Because if you learn something yourself, you can understand. In other words, you cannot do something in the classroom with the knowledge of 15 years, 20 years ago. Especially teachers' getting used to new techniques and their attitudes towards any innovation greatly affect this process. For example, we attended a training on this system four days ago. There are still teachers in our school or different schools who think this is unnecessary. Because classroom teaching is something else, primary school teaching is something else. Unfortunately, teachers still need improvement when teachers still hold themselves back on these issues. "</i>
<p>What would he/she need to keep on growing professionally?</p>	<p>Yusuf thinks that to improve himself, he needs to achieve the goals he has set for himself. For example, he must improve his foreign language skills and learn about ERASMUS projects.</p>
<p>What would he/she need to improve their collaboration with other teachers/colleagues?</p>	<p>He mentions that to improve teachers' cooperation, their work should be valued and have a financial return. He says teachers are not motivated, especially in voluntary work, but are better encouraged in positions with financial gain. He mentions that there should be a certain wage to increase this.</p> <ul style="list-style-type: none"> <i>"Obviously, it is a great deficiency that the work done needs to be financially rewarded. The teachers who do this are volunteer teachers. For example, while ten teachers can apply for a paid department, you need help finding two volunteer teachers. This inevitably disrupts the process. This</i>

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	<p><i>may be done voluntarily, but it must be seen that there is a return for the labour that is done voluntarily. More people will contribute more, and new ideas can be created.</i></p>
PLATFORM teach4life	
Describe the general experience using the 3C4life platform	<p>Yusuf liked that the platform has content close to his field of interest. He also finds it successful that there are many examples. He summarises the broad experiences as follows:</p> <ul style="list-style-type: none"> • <i>"One of the best things about the online platform is that it is nice to have different ideas there. It is nice to have examples of areas you can benefit from, such as areas where we can cooperate. It is also nice to have a section for cooperation and to exchange ideas, where teachers can discuss themselves. Also, I think that part is not very active yet. But I am sure that people who enter here can find the ideas in their minds, and they can find them, especially in the discussion sections.</i>
Which concrete suggestions of improvement did he/she have?	<p>He mentions that it would be better for teachers if the activities also had a finalised or expected outcomes section because teachers have more options to prefer more structured activities.</p> <ul style="list-style-type: none"> • <i>Now, the logic of the website is to host an area where information can be accessed as quickly as possible. For example, if there are contents of sample activities, that is, if there are finalised sections, it would be more interesting. Especially for teachers, having an area where they can find information about a subject when looking for information will make their work easier.</i>
Which elements of the platform did he/she find most interesting/useful?	<p>He considers the richness in the competence section to be the most valuable part.</p>
Career:	
In which way did the platform inspire/motivate him/her to advance their career as a teacher?	<p>Yusuf mentions that STEM-related careers among career opportunities motivate him, especially STEM ambassadorships inspire him:</p> <ul style="list-style-type: none"> • <i>"I am also a Scientix ambassador. We are also working on STEM, and it would be healthier to have such ambassadorships in our country,</i>

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	<p><i>especially for developing this. There were a few guide interviews about this, and they inspired me."</i></p>
<p>How he/she finds the career section of the platform (what is good, what is missing)?</p>	<p>He states that the parts described in the career section should be included in the classroom or in the applications made under the context of the career itself:</p> <ul style="list-style-type: none"> <i>"It would be better if there is an application section of the interviews, not only in terms of narration but also an area where application steps are included. For example, it can include sections showing the STEM coordinator's practices at school."</i>
<p>Which suggestions for improvement he/she has regarding the career part?</p>	<p>He mentions that teachers can be more motivated if career opportunities include information about STEM-specialised schools or schools that have received the STEM label.</p> <ul style="list-style-type: none"> <i>"For example, sample schools can be made in the schools' section. The work done by the schools that have received the STEM label can be used here as an example or for promotional purposes, but if they see that there are such schools, maybe a more inspiring section can be created."</i>
<p>How has his/her view about the teachers' career changed in any way due to the platform?</p>	<p>He emphasised that there was no change of opinion. He said he was glad more people thought like him as he watched the videos.</p>
<p>Competence</p>	
<p>In which way did the platform inspire/motivate him/her to advance knowledge and inspiration for teaching?</p>	<p>The inquiry-based learning part was interesting for Yusuf because he states that it is an approach that he also uses in his classroom:</p> <ul style="list-style-type: none"> <i>Since the inquiry-based learning section is one that we also apply in our classes, the area that interests me is inquiry-based learning methods in such subjects. The videos about this subject in the mathematics, biology, chemistry and physics departments are inspiring. I'm not too involved in other aspects of this subject, but the inquiry-based learning sections are more interesting to me."</i>
<p>How he/she finds the competence section of the</p>	<p>He thinks there is no situation that he sees as a deficiency, but there could be an increase in the number of examples as an improvement.</p>

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platform (what is good, what is missing)?	<ul style="list-style-type: none"> <i>"I never considered it a deficiency, but these activity examples can be multiplied. I mean me. Too many. Nothing I said was missing, but it would be better if the pool of examples were increased."</i>
Which suggestions for improvement he/she has regarding the competence part?	There are no concrete development proposals.
Collaboration	
In which way did the platform inspire/motivate him/her to collaborate with other teachers?	<p>Yusuf says that he needs to improve in terms of cooperation. He states that through this platform, he realised how simple it is to establish a partnership.</p> <ul style="list-style-type: none"> <i>"This is how we benefit from stakeholders. We all do a good job by learning. At the time of a project or an event, we collect these sample things and ideas using one or two tools, either a survey or an exchange of views, where different ideas will emerge. And in our project that we apply to children's age groups, we can choose from these examples whichever age group is appropriate. When there is an activity for children, there are really different examples, sometimes from abroad, from Azerbaijan or the Netherlands. You know, why couldn't we think of this? Sometimes we are surprised ourselves. It is a very simple thing. The basic logic is to emphasise simplicity. In other words, children do a very simple thing and enjoy it very much. The idea of cooperation actually simplifies things. This platform motivated me in these matters."</i>
How has his/her view about teacher collaboration changed?	He states that this is how he realised that cooperation is important, but there is a simple way.
What did he/she find most useful to support teacher collaboration?	-
How he/she finds the collaboration section of the	He doesn't have a clue.

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platform (what is good, what is missing)?	
Which suggestions for improvement did he/she make regarding the collaboration part?	<p>They see the acceptance of the certificates and documents received by the ministries of education by the teachers who take part in projects, etc., that have the possibility of cooperation as a factor that will increase these cooperations.</p> <ul style="list-style-type: none"> <i>You are taking a STEM-related course in Konya. Of course, you make a plan, send it, approve it, and spend labour. They also send you a document. This document has no different value than the paper we find next to the rubbish. In other words, it would be effective to integrate such places, especially the departments within the European school network, into National Education and add the certificates received to teachers' careers. In other words, we have ten documents, but National Education does not recognise them, or they need to make more sense.</i>
Any additional comments that he/she made about the platform:	

Turkey

Partners are encouraged to **draw on evidence to support their case study report** based on the selected cases. Evidence may come from different sources (e.g., teachers' written responses to open questions about the 3C4life platform; quotations from the 5 teachers' interview or Matomo analytics related to the use of the platform in any partner country). Quotations showing teachers' responses are highly appreciated to illustrate any of the key points.

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>Which elements of the platform did teachers find the most interesting or useful to know about different career pathways related to the teaching profession?</p>	<ul style="list-style-type: none"> • They find it useful that the platform makes available information about career opportunities or possibilities that are not easily accessible or shared. • They found it interesting that the selection of people in the career section was from the field and that people suitable for the authentic context were selected other than the types of teachers we are used to seeing everywhere. He thinks that he feels close to himself while listening to the people in those videos and that it would be useful for everyone, not only to include people who have made a name in the field. 	<ul style="list-style-type: none"> • Interview 1: "... there are such career opportunities, but no one supports anyone in this regard. You need help finding information about career opportunities, or people want to share it. • Interview 2: "... I was surprised because the people who do this kind of work usually give examples of people who have made a name for themselves and who are a bit utopian. They are usually called and created. So you are not selling empty dreams..."

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>In which way did the platform help teachers to explore different career pathways related to the teaching profession (mentoring, school management, educational administration...)?</p>	<ul style="list-style-type: none"> • It helps that undecided about a career change or lack career information. • It helps to see what they need, thanks to people who have developed their careers. 	<ul style="list-style-type: none"> • Interview 1: "For example, I was torn between R&D or STEM coordinators because there are education coordinators and R&D units in schools. What kind of differences exist between these units, and how can I work in these units? I was able to understand better what they expect from me." • Interview 1: "It is necessary to feel the need for a career change. Change and the desire to keep up with this change means career development for me. Thanks to the videos, I realised what I need to do." • Interview 3: "My motivation to develop my career was revitalised by seeing my peers in the videos, and it helped me realise that I should pursue a PhD."
<p>Are there any aspects of the 3c4life platform that can be improved in terms of encouraging teachers to explore different career pathways related to the teaching profession?</p>	<ul style="list-style-type: none"> • More sample videos • Career videos should include individual interviews and more detailed questions, especially about how they overcome the problems at turning points in career development, and the kitchen part of the work should also be included in the videos. 	<ul style="list-style-type: none"> • Interview 2: "There can be a higher version of things for career development. In other words, the problems in the places where these people have passed can be mentioned instead of just explanations in individual interviews. For example, as far as I listened to the videos, it is mentioned that they passed some exams, but there is no information about what kind of questions were asked in those exams..." • Interview 5: It would be better if there were an application section for the interviews, not only in

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<ul style="list-style-type: none"> Including teaching abroad and opportunities abroad can improve the career part of the programme. 	<p>terms of narration but also in an area where application steps are included. For example, it can consist of sections showing the STEM coordinator's practices at school."</p> <ul style="list-style-type: none"> Interview 3: "It may be about how we can guide children in projects, but it is always about that part. I mean guidance in this sense. More precisely, there is something like this. There are a lot of project requests, and there is a lot of desire to participate in competitions. How can we motivate teachers? ... But how to motivate students? How to manage that process? I mean, I always do what I see good, what I see bad, what I see good..." Interview 4: "...You know, maybe in this sense, since our business partners are teachers from different countries, maybe in this sense, how should a teacher who wants to go abroad follow a path or how can they gain a place abroad? Maybe you can focus on this a little bit." Interview 3: "I didn't see anything about career opportunities abroad. There are such careers, but these are the parts with the least information. I am not only talking about our country; for a European teacher, Turkey is an unknown box."

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>In which way did the platform motivate teachers?</p>	<ul style="list-style-type: none"> • It helped and inspired teachers to increase their motivation and think about career possibilities. • Motivation varies from teacher to teacher and does not motivate teachers who already know these subjects. 	<ul style="list-style-type: none"> • Interview 5: "...I am also a Scientix ambassador...It would be healthier to have such ambassadorships in our country, especially for developing this. There were a few guide interviews about this, and they inspired me." • Interview 1: "For example, I was torn between R&D or STEM coordinators because there are education coordinator-ships and R&D units in schools. What kind of differences exist between these units, and how can I work in these units? I was able to understand better what they expect from me." • Interview 4: "The career section helps us to be equipped. But if I were a person who had not been involved in similar projects before, I would say yes. There is such a thing, and I would start researching. But you know, many of the existing problems I had heard before because I had participated in similar projects." • Interview 2: "I have experienced these career steps (Project manager, DENEYAP Trainer, BİLSEM teacher, STEM Coordinator, R&D Coordinator), and I need other career opportunities. In the second version of this

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>How views about the teaching career have changed as a consequence of the platform use?</p>	<ul style="list-style-type: none"> • Their views on what they should do as teachers, the need to continue their education (postgraduate), and their ties with the university in some way (postgraduate, project, etc.) to keep up to date have developed. • It motivates teachers to see people trying to get to existing positions and the content about them and those doing better work. • Some have no change of opinion, and this is because the interviewees have experienced many career opportunities. 	<p>project, we need suggestions for people with these careers."</p> <ul style="list-style-type: none"> • Interview 1: "Yes, I am a teacher, but I asked myself, what else can I do? I also think that I should continue my education to follow the agenda. ... yes, I mean, I can do a PhD; I am researching how to do this, and I have added it to my career planning right now..." • Interview 2: "...I also realised that many people have access to what we are doing now. We are doing a valuable job; we are on the right path. But I also learnt that some do better, and we can get there as soon as possible. We need to be able to work for this. • Interview 4: "...It motivated me like this. Apart from what I have just said, there is something like this in teachers who can't fit in. I wonder what I should do differently, and we dive into different branches occasionally..."
<p>Which elements/resources of the platform are especially interesting to develop particular skills and competencies relevant to the teaching profession nowadays?</p>	<ul style="list-style-type: none"> • Examples of activities are seen as interesting, useful, and fulfilling the lack of resources in the field. • It is emphasised that the authentic context section is interesting for 	<ul style="list-style-type: none"> • Interview 1: "... I used the competence dimension often while creating a lesson plan or writing questions. I have 5th, 6th and 7th-grade students, and I benefited greatly from it while doing activities for them."

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>context-based questions/modern question styles and learning how to relate to socio-scientific issues.</p> <ul style="list-style-type: none"> In general, teachers are satisfied with the competence programme. 	<ul style="list-style-type: none"> Interview 2: "... "I was particularly interested in authentic contexts. Because now, even modern exam questions are based on these contexts, it is difficult to create a good context, and it motivated me to see what the dynamics of this are." Interview 3: "It is difficult to find examples for socio-scientific topics in maths, and relating it to authentic contexts is really useful. Those sections were very useful for me, and I used them in my lessons." Interview 4: "I have studied social science subjects. There are not many sources on this in Turkey. I can find one or two sources abroad, and I try to translate them into my language, but again, this is not in the logic of an activity. At least I have established this as one or two activities, and it gave me hope." National sharing platform (06 Sevil): I would like to apply my class's "Just Breathe" teaching material. I believe that starting from a real-life problem, asking students research questions, sharing and discussing their ideas together will motivate them more to the lesson. Seeing where to access data on air pollution and how to analyse it will be very useful for their projects.

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>Are there any aspects of the 3c4life platform that can be improved in terms of supporting the development of useful teaching competencies? Do teachers miss any relevant aspect in this respect?</p>	<ul style="list-style-type: none"> • As a deficiency, they state that activity examples, such as those in the competency section, should be shared by teachers. • Including resources that students can go to within the activities can increase student use and thus strengthen the possibility of teachers using them. • There are requests for activities for lower groups, and some examples are requested even for kindergarten. 	<ul style="list-style-type: none"> • Interview 4: "This was part of the platform that most excited me about competence. Yes, there is an activity, but I can apply it, criticise it, add to it, and subtract from it. I can at least comment on my experiences by saying, "Look, I applied it in the kitchen, but this place is not right." • Interview 3: "I can't remember if there was a measurement, but a research question can be given. You know, the more the child reads it, the more it comes out, and if there are things that maybe encourage the children, such as entering these sources, searching from here and there and researching this subject because teachers usually always give questions from those assessments. In other words, it can be easy to find, easy to access, easy to use." • Interview 1: It should be a lower group; these things should start from kindergarten. My children will be three years old; I am doing activities with them at home. The new generation is coming with a very different way of thinking, and it may be a course in which we create STEM sub-skills for the future. Children's STEM sub-skills should start from a

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
		<p>slightly smaller group, such as recognising some things, experimenting with experiments or data, tabulating something about data, criticising graphics, etc...</p>
<p>How did the platform support teacher collaboration? Why? Which elements/features of the platform support the building and development of communities of practice? Which elements were best appreciated by teachers in this respect?</p>	<ul style="list-style-type: none"> • The cooperation dimension should be used more in our country. • General situation: The collaboration point of the platform needs to be better mastered. However, it is mentioned that the more active the cooperation is, the better it will be for teachers. In other words, it is believed to be useful in theory rather than practice. 	<ul style="list-style-type: none"> • The total number of entries on the national sharing platform is 6. • Interview 2: "I am not very familiar with the part on cooperation; I mean, let me tell you that I did not look at it in detail, and it would not be right to say something about something I do not know or have not mastered. But let me put it this way; I think that the more this cooperation is reflected in us as teachers, the better." • Interview 4: "Anyway, it is very valuable that we can give each other feedback so that the activities and research today can progress thanks to feedback. In other words, an activity I have prepared may seem marvellous and may have many mistakes I have not seen. In this sense, working with my experienced friends and getting feedback is very valuable, and I find it very valuable and developing."

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
<p>How teachers' views about teacher collaboration have changed as a consequence of the use of the platform?</p>	<ul style="list-style-type: none"> • There are some ideas that cooperation is important and that it is understood that it can be done. • It is emphasised that his views on cooperation have developed positively, leading him to come together with more colleagues. 	<ul style="list-style-type: none"> • Interview 4: "Actually, it changed it like this. It brought to my mind the question mark that I had just set up: we expect children to cooperate, but do we cooperate? As I said, I have been in many similar platforms and projects, but other projects have never raised this question mark before. This platform raised this question mark for me."
<p>Do teachers miss anything in the platform to support teachers' collaboration?</p> <p>Do teachers have any concrete suggestions to improve the platform design in terms of promoting teacher collaboration?</p>	<ul style="list-style-type: none"> • The cooperation part seems problematic in terms of accessibility and ease of use. • As a suggestion, the cooperation part of the forum structure should be changed, and a design that provides instant communication should be established. • The fact that there are few responses to what is written on the platform, which reduces motivation, creates a negative effect. 	<ul style="list-style-type: none"> • Interview 1: "Maybe because it (cooperation) is not opened very quickly on the platform, or if there are areas where you can easily log in to the teach4life sections from your phone, such as chat area, telegram. In other words, if those areas could be opened much more easily, unfortunately, accessibility can sometimes hinder us." • Interview 1: "The old fashioned remained old fashioned, so what we call old fashion has become that situation. It should provide telegram-style quick access like the current one. It would also be useful to have it so you can see who is writing live directly. " • Interview 2: "I don't know if you will organise a teachers' conference to continue this project, but if you plan such a thing, it is very good. Because, there is a need for an

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
		<p>environment where teachers can see each other and exchange ideas instantly.</p> <ul style="list-style-type: none"> • Interview 3: "Like I said. Those forums. For example, there was no forum for education; I had opened it, you know, he says congratulations, or I want to work with such and such countries, can I find a partner? You know, the subject is very standard there, just like that. What kind of difficulties do you experience while doing projects? Has this been effective in your career? What in terms of cooperation? You know, such questions are not very attractive to people, and they don't want to be hope." • Interview 3: "Regarding cooperation, for example, when we wanted to find a project partner, we wrote in the forum at the level of countries. But only some countries are interested or see it as extra work. It could increase the interaction there and with them, maybe with teachers abroad. In other words, they can meet with an online tool and see what they are doing. "
<p>Is there any other relevant aspect you would like to discuss in relation to the 3C4life platform?</p>	<ul style="list-style-type: none"> • The platform's target audience needs to reach people who want to change their careers or develop 	<ul style="list-style-type: none"> • Interview 1: "First, being involved in such a platform was very nice. To be accepted just when I was in such a search. It was very nice

Guiding questions to respond	Responses based on research evidence	Source/evidence (e.g. teacher 1 interview)
	<p>themselves in STEM fields. People in this situation benefit from the system. But it has yet to have the desired effect on people who have experienced certain areas in their career or those who do not need such a change. This raises the question of whether the platform does not serve us or whether we cannot reach the people in the target audience.</p>	<p>to be guided and guided in this search. That place inspires me a lot. There are places like this saved on my computer; there is something to visit, and it comes out. I go in and out of there during the day. I get help from there while preparing lesson plans. It has been a nice place for me; I hope we can bring its continuity. So I thank you for including us in this platform."</p>