

WP3 Experimentation methodology and protocol

D3.1 Pre/post questionnaires for data collection

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Information about the deliverable

WP N° 3 (Experimentation methodology and protocol)

Publication date: December 2021

Report/WP title: D3.1 pre/post questionnaires for data collection/Experimentation methodology and protocol

Project Information

Agreement no. 626

Project title: Perspectives for Lifelong STEM teaching: Career Guidance, Collaborative Practice and Competence Development

Project acronym: 3C4Life

Start date of project: 01/02/2021-28/02/2024

Duration: 36 months

Program: 139-EPP.I-2020-2-DE-EPPKA3-PIPOLICY

Contact Information

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Executive Summary

The 3C4life project intends to promote excellence in the teaching profession and to improve teachers' motivation and professional development to better adapt to current training needs and educational demands. To this end, the project proposes a policy measure based on the implementation of a digital platform for teacher professional development with an emphasis on teachers' collaboration, competence development and the knowledge of and navigation through multiple professional pathways. In addition, the project intends to evaluate the impact of the policy measure on participants and to develop a better understanding of how to improve teachers' motivation, collaboration, professional development and career advancement. The final goal is to provide robust research evidence to inform educational policies in this area.

Within the project, WP3 is responsible for the experimentation methodology and protocol to ensure valid, reliable and robust research evidence to inform the policy measure. The main goal of WP3 is to assist partners in the process of data collection and reporting for the policy experimentation and to ensure that all the partners are committed to it.

The experimentation methodology is based on mix methods, therefore including quantitative and qualitative research instruments for data collection.

The quantitative research instruments intend to evaluate the impact of the platform on teachers' motivation, perceived knowledge and competences, self-efficacy and willingness to cooperate with peers or to engage in career advancement and professional development. To this aim WP3 will develop pre/post questionnaires for data collection with an intermediate administration (D3.1).

Qualitative instruments intend to provide an in-depth view of how teachers have experienced the policy measure and to develop a better understanding of how to improve teachers' motivation, collaboration, professional development and career advancement. To this aim, WP3 will develop open questions to evaluate the 3C4life platform, guidelines for teacher interviews and a template to report on 3C4life case studies (D3.2). The open questions will be designed to collect feedback about the specific features of the platform such as those named as motivational triggers, those allowing teachers to navigate through multiple career pathways and features developed to promote teachers' participation in community building.

This deliverable reports on the pre/post questionnaire developed to evaluate the impact of the platform on the participating teachers.

Main Report

Background and key information for the development of the pre/post questionnaires for data collection

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 will develop a digital platform aimed at improving teachers' motivation, collaboration, competence development and career advancement. The platform will be specifically designed to fulfil the project's objectives exhibiting 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). In order to do so, the following research questions will be 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?

Guidelines for implementing protocol: Responsibilities, roles, participants and plans for the field trials

Along with the previously presented information describing the background for the development of valid and reliable pre, intermediate and post questionnaires to evaluate the impact of the policy measure, this deliverable contains **guidelines to support the implementation protocol**. Within this section, you will find all relevant information for rigorous field trials and data collection, ensuring valid and reliable results, as well as the definition of roles and responsibilities among the consortium:

The implementation of the policy measure will take place in the six consortium countries: Germany, The Netherland, Lithuania, Turkey, Portugal and Spain, which are responsible for a good national adaptation and a thorough implementation. In addition, partners from the six countries are responsible for ensuring the expected data collection (see details below)

to provide robust research evidence to inform future educational policies about teachers and teaching.

WP4 is responsible for the field trials and data collection in any country and WP8 is responsible for quality control, developing a template for monitoring the field trials based on the experimentation methodology and protocol (WP3).

WP3 is responsible for the development of the evaluation instruments for the policy experimentation, the protocol guidelines and the framework for case studies (D3.1 and D3.2). According to the project description, a quasi-experimental design, including pre/post questionnaires will be used to evaluate 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). Questionnaires will be administered before enrolling in the policy measure (pre-questionnaire), three months after (post-questionnaire) and six months after (delayed post-questionnaire). Case studies will be conducted to develop a better understanding of how the key features of the platform have contributed to improve teachers' motivation and engagement in teacher professional development and career advancement and their willingness to cooperate with peers.

According to the project description, **the sample size per country** for the before-after (and intermediate) comparison is **n=120 teachers** (P. 105 of the proposal) and the sample size for each country's **case studies is n=5**. This ensures a diverse picture and is feasible for partners. We will select the cases from participating teachers, giving us comprehensive insights into the research questions and thereby, choose examples of 'typical' developments or extraordinary cases (Yin 2014, Flick 2012).

The experimentation will start in 2021 (development of the platform and evaluation tools). **Six-country implementation and data collection will come in 2022**, with data analysis, **reporting and conclusions in 2023**. For the national implementation, each country will set up its national version of the platform in 2022 and data collection will start from the experimentation group when first accessing the platform (pre-collection), after 3 months of use (post-test) and after 6 months of use (delayed post-test). Collecting case study data will occur after the use of the 3C4life platform to assess changes and outcomes.

Pre/post and intermediate questionnaires for in-service teachers

Dear teacher,

3C4life is a European project involving 12 institutions from 6 European countries that intends to improve the teaching career providing interesting opportunities for teacher collaboration, professional development and career advancement, with an expected impact on teachers' knowledge about different career pathways, competence development, motivation, job satisfaction, and enthusiasm for teaching and collaboration with peers.

The project intends to provide research evidence about effective ways to achieve these objectives and to this end, it is necessary to know about your experience, before, during and after taking part in 3C4life teacher professional development. Collecting this information will take about 15-20 minutes and it requires you to fill-in a questionnaire using an anonymisation code. Your contribution is essential to promote research-informed policies about the teacher career.

Data will be handled confidentially, processed anonymously respecting ethical principles and data protection laws and only used for research purposes. Your participation is voluntary and you can withdraw your consent at any time, without having to give any reason for why, you no longer want to give your consent.

In order to give your consent, please, tick the appropriate boxes:

I have read and understood the project information	<input type="checkbox"/>
I give my consent to participate in 3C4life research	<input type="checkbox"/>

To generate your personal anonymization code, write:

1. first letter of your first name: _____
2. first letter of your mother's first name: _____
3. second letter of your mother's first name: _____
4. Day of your birthday: _____

Now, transfer your code here:

1. Mark (cross) the first letter of your first name.																														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z					
2. Mark (cross) the first letter of your mother's first name.																														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z					
3. Mark (cross) the second letter of your mother's first name.																														
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z					
4. Mark (cross) the day of your birthday.																														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

1. General information

Please write today's date

day	month	year

Mark your Gender female male other

Age (years)

20-30	31-40	41-50	51-60 y	More than 60

Write the country where you teach:

Years of teaching experience

0-5	6-10	11-15	More than 15

Choose your main field of expertise according to your educational background

Mathematics	Physics	Chemistry	Biology	Technology	Geology	Other

Which subjects have you mainly taught in the last 5 years

Mathematics	Physics	Chemistry	Biology	Technology	Geology	Others

Was teaching your first career choice

Yes	No

How many training courses have you attended in the last 5 years

None	1-3	4-5	More than 5

	Never	Rarely	Sometimes	Very often
How often do you use digital platforms for your professional development?				
How often do you use digital resources to improve your teaching				

	Completely disagree	Disagree	Agree	Completely agree
To what extent do you agree				
I feel motivated to enroll in new teacher professional development courses				



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Mark the option that best express your level of agreement with these statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I feel that teaching is a crucial tool to help people learn.					
I consider that the teaching profession is important for society.					
I feel that teaching is worth doing.					
I feel passionate about the teaching career.					
I find the teaching career attractive.					
I am interested in growing professionally.					
I am interested in continuing my teacher professional development.					
I am interested in collaborating with other teachers.					
I know how to make students interested in what I teach.					
I am finding better ways to help my students learn.					
I know how to teach my subject effectively.					
I feel confident teaching my subjects in different ways.					
I know how to make my subject interesting to students.					
I know how to engage students in inquiry activities.					
I know how to plan inquiry-based lessons for my classes.					
I feel confident guiding students in inquiry activities.					
I know how to connect what I teach to students' lives.					
I know how to use contexts from reality to make my subject interesting to students.					
I know how to use technology in my classes to support learning.					
I find it very difficult to collaborate with other colleagues because of lack of time.					
I find it very difficult to collaborate with colleagues because of the school organisation.					
I find it very difficult to collaborate with colleagues because of lack of collaborative culture.					
I have very good experiences collaborating with other colleagues.					
Collaborating with colleagues help me to grow professionally.					
I find it useful to get feedback from other colleagues.					
Exchanging experiences/ideas with other colleagues is really useful.					

Mark the option that best express your level of agreement with these statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Collaborating with colleagues is time-consuming.					
I know about different positions, I can take as a teacher (i.e. school management and leadership, educational policy, teacher centres...).					
I know about different career pathways, I can take as a teacher.					
I know different ways to get higher positions in my career.					
The teaching profession has multiple paths for professional development					

In addition to this pool of items, the intermediate and pot-questionnaire will include the following ones:

In relation to the 3C4life platform for teacher professional development	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The structure of the platform is appropriate.					
The activities of the platform facilitate the exchange of experiences with peers.					
The videos available are motivating.					
The videos are useful to illustrate how to use particular teaching strategies or methods.					
The videos shown are inspiring.					
The platform is useful to know about different career pathways.					
The platform offers useful resources to improve my teaching.					
The motivating materials of the platform have increased my involvement in professional development.					
The career area of the platform has raised my motivation to shape my best personal path as a teacher.					
The cooperation area of the platform has increased my participation in communities of practice with other teachers.					

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In order to give your consent, please, tick the appropriate boxes:

I have read and understood the project information	<input type="checkbox"/>
I give my consent to participate in 3C4life research	<input type="checkbox"/>

To generate your personal anonymization code, write:

5. first letter of your first name: _____
6. first letter of your mother's first name: _____
7. second letter of your mother's first name: _____
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2. General information

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Mark your Gender female male other

Age (years)

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Write the name of your country:

Choose your main field of expertise according to your educational background

Mathematics	Physics	Chemistry	Biology	Technology	Geology	Other

Was teaching your first career choice

Yes	No

How many training courses have you attended in the last 5 years

None	1-3	4-5	More than 5

	Never	Rarely	Sometimes	Very often

	Completely disagree	Disagree	Agree	Completely agree



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Mark the option that best express your level of agreement with these statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
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I consider that the teaching profession is important for society.					
I feel that teaching is worth doing.					
I feel passionate about the teaching career.					
I find the teaching career attractive.					
I am interested in growing professionally.					
I am interested in continuing my teacher professional development.					
I am interested in collaborating with other teachers.					
I know how to make my future students interested in what I teach.					
I am finding better ways to help my future students learn.					
I know how to teach my subject effectively.					
I feel confident that I will be able to teach my subjects in different ways.					
I know how to make my subject interesting to my future students.					
I know how to engage my future students in inquiry activities.					
I know how to plan inquiry-based lessons for my classes.					
I feel confident that I will be able to guide students in inquiry activities.					
I know how to connect what I teach to students' lives.					
I know how to use contexts from reality to make my subject interesting to my future students.					
I know how to use technology in my future classes to support learning.					
I think that teacher collaboration is difficult because of lack of time.					
I think that teacher collaboration because of the school organisation.					
I think that teacher collaboration because of lack of collaborative culture.					
I have very good experiences collaborating with other colleagues.					
Collaborating with colleagues help me to grow professionally.					
I find it useful to get feedback from other colleagues.					



Mark the option that best express your level of agreement with these statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Exchanging experiences/ideas with other colleagues is really useful.					
Collaborating with colleagues is time-consuming.					
I know about different positions, I can take as a teacher (i.e. school management and leadership, educational policy, teacher centres...).					
I know about different career pathways, I can take as a teacher.					
I know different ways to get higher positions in my future career.					
The teaching profession has multiple paths for professional development					

In addition to this pool of items, the post-questionnaire and delayed post-questionnaire will include the following ones:

In relation to the 3C4life platform for teacher professional development	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The structure of the platform is appropriate.					
The activities of the platform facilitate the exchange of experiences with peers.					
The videos available are motivating.					
The videos are useful to illustrate how to use particular teaching strategies or methods.					
The videos shown are inspiring.					
The platform is useful to know about different career pathways.					
The platform offers useful resources to improve my teaching.					
The platform has increased my involvement in professional development.					
The platform has increased my motivation to shape my best personal path as a teacher.					
The platform has increased my participation in communities of practice.					