

# Beliefs on teaching SSI questionnaire (IO8)

ENSITE project

\* Required

1. Age \*

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2. Country \*

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3. Gender \*

*Mark only one oval.*

Female

Male

Prefer not to say

Other: \_\_\_\_\_

4. Specialisation in teacher education \*

*Check all that apply.*

Mathematics

Physics

Chemistry

Biology

Geology

Primary school

Other:  \_\_\_\_\_

5. Which age group will you teach when you graduate? \*

*Check all that apply.*

4-5

6-12

12-14

15-18

Other:  \_\_\_\_\_

6. What are socioscientific issues? Please provide a definition. \*

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7. To what extent have you been taught the following during your studies to become a teacher? \*

*Check all that apply.*

	Not at all	To some extent	Yes	In detail	specialised
Socioscientific issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Argumentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ethical issues in science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
problem based learning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
uncertainty in science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. The doctor informed you that you need to undergo surgery. When thinking about your decision, how much do the following affect you? \*

*Check all that apply.*

	Not at all	To some extend	They affect me	A lot	Most important in my decision
Scientific evidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other people's opinion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information from the internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The opinion of the expert/doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ethical issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Religious issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
financial issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Do you trust information from the social media?

*Mark only one oval.*

- Yes, very much
- To some extend
- Not at all
- I do not know

10. Do you trust scientific research?

*Mark only one oval.*

- Yes, very much
- To some extend
- Not at all
- I do not know

11. Please explain your response if you wish.

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**Beliefs on  
socio-scientific  
issues**

Socio-scientific issues are controversial issues for science and/or society. They are usually on the frontier of science and require the use of evidence from science as well as other disciplines (i.e. financial or societal implications). They also require judgement and decision making and a degree of ethical evaluation. An example of a socio-scientific issue could be "Is it better to build nuclear power plants?". The controversy can be on the dangers related to nuclear energy but the discussion can also focus on the positives on the environment from the low emissions.

12. Now that you have read a definition of socio-scientific issues, which of the following topics would you consider as socio-scientific? \*

*Check all that apply.*

	socio-scientific	not socio-scientific	not sure
Global warming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vaccines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
use of antibiotics to treat infections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
engineering babies (changing the DNA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
genetically modified fruits and vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
abortion of medical reasons	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
building wind plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
electric cars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
herd immunity in covid-19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. How important are the following for you when trying to make a decision? \*

*Check all that apply.*

	Not important	some what important	Important	Very important	Most important
Scientific evidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal opinion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Data from experiments related to the issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The financial aspects of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The moral/ ethical aspect of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information from social media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The religious aspect of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An understanding of the science behind the issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trust in scientific work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Consider the following socioscientific issue: As life expectancy of people is growing, the need for transplant of human organs is becoming bigger. A way to solve this issue is by using cells from a person to grow organs in the lab. Some people disagree with this idea. How important do you think are the following when trying to make a decision on this issue

*Check all that apply.*

	Not important	some what important	Important	Very important	most important
Scientific evidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal opinion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Data from experiments related to the issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The financial aspects of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The moral/ ethical aspect of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information from social media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The religious aspect of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An understanding of the science behind the issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trust in scientific work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Explain you response on the previous question if you wish.

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16. Consider the following socioscientific issue: Kate is introducing to her class the topic of eating insects as a way to reduce the carbon footprint. How important do you think are the following when considering the scientific issue of eating insects? \*

*Check all that apply.*

	Not important	some what important	Important	Very important	most important
Scientific evidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal opinion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Data from experiments related to the issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The financial aspects of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The moral/ ethical aspect of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information from social media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The religious aspect of the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An understanding of the science behind the issue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trust in scientific work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. Explain your response on the previous question if you wish.

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18. How appropriate are the following methods for teaching socioscientific issues? \*

*Check all that apply.*

	Not appropriate	somewhat appropriate	appropriate	very appropriate	most appropriate
Lecture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Experiment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Discussion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Role play	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Memorizing facts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inquiry-based teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
group work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
debate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
story telling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



19. Jane is discussing the issue of plastic waste in her class and one of the students says that she does not care if there is waste because she has to wear gloves to keep safe from COVID-19. What do you think is a more appropriate response from Jane? \*

*Check all that apply.*

	Not appropriate	some what appropriate	Appropriate	Very appropriate	most appropriate
Tell the student she is wrong and explain the science behind her thinking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tell the student she is right and ask her to explain her reasoning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ask the student why she thinks that and invite the rest of the class to contribute	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tell the student she is free to choose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ask the student to provide evidence and engage the class in a debate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Mike will introduce the issue of alternative sources of energy (i.e. use of solar or wind energy) to his class. Which of the following are more appropriate ways to introduce the topic? \*

*Check all that apply.*

	Not appropriate	some what appropriate	Appropriate	Very Appropriate	most appropriat
Present information on alternative sources of energy and explain the positive aspects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Present information on alternative sources of energy and explain the positive and negative aspects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ask students to share their opinions on the use of alternative sources of energy and then	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ask students to engage in debates and find information to support their opinion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Do a lecture about alternative sources of energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. I believe that SSI \*

*Check all that apply.*

	Strongly Agree	Agree	some what agree	Disagree	Strongly Disagree
Should be taught as a separate subject in schools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Should be integrated in science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Should be integrated in mathematics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Should be integrated in social studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does not belong to science teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does not belong to mathematics teaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Have a single correct answer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Are difficult to discuss with students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
are important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
can help students appreciate the uncertainties of science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
can help students acquire decision making skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. How comfortable to you feel about teaching socioscientific issues in your class? \*

*Mark only one oval.*

	1	2	3	4	
Very comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Not comfortable

23. How comfortable to do feel about discussing issues with uncertainties (i.e. not a single correct answer)? \*

*Mark only one oval.*

	1	2	3	4	5	
very comfortable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	not comfortable

24. Please explain your response \*

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25. If you were asked to chose one socioscientific issue to teach to your class, which topic would you chose? \*

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