QUESTIONNAIRES FOR TEACHERS
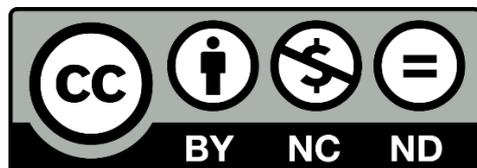
POST QUESTIONNAIRES FOR TEACHERS PARTICIPATING IN STEM ACTIVITIES DESIGNED AND USED BY FLORIDA SECUNDÀRIA & SINS CARDENER

STEAM4U: Raising students' perceived self-efficacy in STEAM
to provide opportunities for all
Project number 2016-1-ES01-KA201-025633

POST-QUESTIONNAIRE

QUESTIONNAIRE GUIDELINES

This questionnaire was used after the implementation of the project of the scientific conference at Florida secundària and SINS Cardener secondary schools. We asked teachers participating in the scientific conference to answer the questions in a sincere and personal way.

The purpose of the questionnaire is to know the opinions of the teachers in order to adapt and improve the training provided in the workshops and assess the impact on their self-efficacy in STEM and knowledge of strategies to raise self-efficacy in teens.

IDENTIFICATION OF THE PARTICIPANT

In the context of the STEAM4U project, we want to know how different teaching strategies are developed when they carry out specific actions to promote equity. In this questionnaire, you will find a series of questions related to some issues that affect the STE(A)M field in education and possible strategies to deal with them. We ask that you respond with the utmost sincerity.

1. **Mail address**

2. **Full name**

3. **After your experience at the Hackathon and at the scientific congress, what do you think it means taking into account equity in STEM education? What does it mean? (give examples)**

WHAT IMPACT DO I THINK I HAVE AS A TEACHER STE(A)M?

We speak of the students' STEM stance to talk about the way in which students feel and think about the topics, contents, professions and all kinds of activities related to STEM, as well as the way in which they publicly express their opinions and / or feelings. It has been detected that there are 5 key elements that influence this positioning of students:
- Your interest in STEM
- Your professional aspirations
- Your identity in STEM
- Your STEM capacity
- Your self-efficacy in STEM

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In this section we ask that you reflect on your teaching style and look at identifying what influence you think you have in each of these elements.

4. **In what aspects of STEM stance of students do you think that your teaching style (activities you do, promoted values, etc.) influences more?**

	What I do in the classroom has no influence	What I do in the classroom has little influence	What I do in the classroom influences moderately	What I do in the classroom influences moderately	What I do in the classroom has a lot of influence, but I do not consider it when it comes to planning my activities	What I do in the classroom has a lot of influence and I take it into account when planning my activities
Interest in STE(A)M (e.g. I am not interested in the activity...)						
Aspirations in STE(A)M (p.e. I decide not to choose the elective of sciences in 4th of ESO)						
Identity in STE(A)M (i.e. I am a STE(A)M person because I like to disassemble appliances)						

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Capacity in STE(A)M (i.e. I was able to carry out a search)						
Self-efficacy in STE(A)M, which corresponds to the belief of the students in their own abilities to carry out a successful task in a successful way (i.e. I think I am not able to solve this problem)						

5.   **Give us an example of how you work in the classroom the aspects of the STEM stance of students in which you think you have more influence as a STE(A)M teacher.**

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6. Compare your teaching style before and after the scientific conference. In which aspects do you think your teaching style has changed more?

	What I did in the scientific conference had less influence than before	What I did in the scientific conference had the same influence than before	What I did in the scientific conference had a bit more influence than before	What I did in the scientific conference had a much more influence than before
Interest in STE(A)M (e.g. I am not interested in the activity...)				
Aspirations in STE(A)M (p.e. I decide not to choose the elective of sciences in 4th of ESO)				
Identity in STE(A)M (i.e. I am a STE(A)M person because I like to disassemble appliances)				
Capacity in STE(A)M (i.e. I was able to carry out a search)				
Self-efficacy in STE(A)M, which corresponds to the belief of the students in their own abilities to carry out a successful task in a successful way (i.e. I think I am not able to solve this problem)				

7. What has allowed you to increase the influence on the aspects of STEM's stance of the students during the scientific congress?

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STRATEGIES TO PROMOTE SELF-EFFICACY STEM - TEACHING EXPERIENCE

Self-efficacy (the belief in own capacities to carry out a task in a successful way) is one of the most important elements of the STEM stance of the students, which are often given little attention. In this section we would like to focus on this element and, in particular, on the strategies that exist for working in the classroom. To structure the look, we have grouped these strategies into four types:

- Strategies related to the promotion of self-regulation of students before, during and after the activity
- Strategies related to actions to promote success in learning
- Strategies related to the generation of a positive classroom environment
- Strategies related to the influence of other agents in the educational community

8. To what degree have you used any of the following strategies related to the promotion of self-regulation of students before, during and after the activity?

	I have not used this strategy in the project	I rarely used this strategy in the project	I sometimes used this strategy in the project	I often used this strategy in the project	I used this strategy very frequently in the project, but I did not take it into account when planning my activities	I used this strategy very frequently in the project and I took it into account when planning my activities
Promote students to be aware of their progress throughout the activity (eg helping them to find themselves, know where they are in relation to the objective of the activity ...)						

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Promote that students develop more efficient strategies to carry out a task (eg help them to make a problem resolution scheme, help them to discriminate the relevant information of the secondary ...)					
Promote emotional education (eg help them overcome anxiety before an exam).					

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9. Strategies related to actions to promote success in learning…

	I have not used this strategy in the project	I rarely used this strategy in the project	I sometimes used this strategy in the project	I often used this strategy in the project	I used this strategy very frequently in the project, but I did not take it into account when planning my activities	I used this strategy very frequently in the project and I took it into account when planning my activities
Classify and sequence the learning objectives and / or the key ideas that want to work in an activity in increasing order of difficulty, establishing an initial level suitable for all students						
Customize the activity at the various learning rhythms (e.g., propose different ways in which the same activity can be carried out)						

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10. Strategies related to the generation of a positive classroom environment

	I have not used this strategy in the project	I rarely used this strategy in the project	I some-times used this strategy in the project	I often used this strategy in the project	I used this strategy very frequently in the project, but I did not take it into account when planning my activities	I used this strategy very frequently in the project and I took it into account when planning my activities
Promote cooperative activities instead of competitive activities to promote peer learning						
Review verbal and non-verbal judgments to emphasize positive messages (e.g., promote optimism)						
Promote exchanges between peers (eg carry out tutorials of equal to equal)						

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Change the roles of students in the classroom (eg review how roles are shared in a project to break down negative associations between students and roles)						

11. Strategies related to the positive influence of other agents in the educational community

	I have not used this strategy in the project	I rarely used this strategy in the project	I someti mes used this strategy in the project	I often used this strategy in the project	I used this strategy very frequentl y in the project, but I did not take it into account when planning my activities	I used this strategy very frequentl y in the project and I took it into account when planning my activities
Engage students in exchanges or experiences with ste(A)M people who show confidence and ability to adapt to failure						
Develop confidence in one's own capacity as a teacher, or the ability of and teaching						

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partners, to influence students					
Involve families in STE(A)M activities so that their children can show their successes to the family and feel they are valued positively					

12. To which extent do you feel you have used more or less the strategies to promote self-efficacy in STEM during the project?

	I have not used less these strategies in the project than before	I have used these strategies similarly than before	I have used these strategies a bit more during the project than before	I have used these strategies much more during the project than before
Strategies related to self-regulation of students.				
Strategies related to didactic actions to promote good learning in STE(A)M.				
Strategies related to the classroom environment.				
Strategies related to other educational agents.				

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13. What has made you use a bit or much more these strategies selected?

STRATEGIES TO PROMOTE SELF-EFFICACY STEM - TEACHING SELF-EFFICACY

14. After participating in the scientific conference, how capable do you feel of using these strategies in the classroom, and generate impact on students, regardless of your experience?

	Not capable at all	Not capable at all, but I could try it	A little capable	Quite capable	Very capable	Totally capable
Promote students to be aware of their progress throughout the activity (eg helping them to find themselves, know where they are in relation to the objective of the activity ...)						
Promote that students develop more efficient strategies to carry out a task (eg help them to make a problem resolution scheme, help them to discriminate the relevant information of the secondary ...)						
Promote emotional education (e.g. help them overcome anxiety).						
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Classify and sequence the learning objectives and / or the key ideas that want to work in an activity in increasing order of difficulty, establishing an initial level suitable for all students						
Customize the activity at the various learning rhythms (e.g., propose different ways in which the same activity can be carried out)						
Promote cooperative activities instead of competitive activities						
Review verbal and non-verbal judgments to emphasize positive messages (e.g., promote optimism)						
Change the roles of students in the classroom (eg review how roles are shared in a project to break down negative associations between students and roles)						
Promote exchanges between peers (eg carry out tutorials of equal to equal)						
Engage students and students in exchanges or experiences with STEM / STEAM people who show confidence and ability to adapt to failure						

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Develop confidence in one's own capacity as a teacher, or the ability of and teaching partners, to influence students						
Involve families in STEM / STEAM activities so that their children can show their successes to the family and feel they are valued positively						

15. What has made you feel much more capable of carrying out these activities?

GENDER IN STEM

In the field of the promotion of equity and a suitable STEM position, several issues associated with gender have been identified. Here are some possible options and we ask you to check the box that you think appropriate, depending on the degree of knowledge / experience you have before these problems.

16. To what extent do you observe some evidences that…

	Not at all	Very sligh-tly	A little	Pretty much	A lot	Very much
The girls feel less involved in science classes than boys.						
Interest in STEM is decreasing throughout the school, especially pronounced in girls.						
In post-compulsory studies, girls are focused on health, biology and medicine, and boys on communication technologies, physics, engineering ...						

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Girls see that their female identities are incompatible with the dominant stereotype of scientist as a man.						
Given a difficulty, the girls are discouraged from the STE(A)M more than boys.						
Given a same academic outcome, girls appreciate their performance worse than boys.						
The perception of self-efficacy (beliefs about one's own abilities) is lower than their real ability, especially in girls.						
The girls are more modest and the boys are getting more up to themselves in the academic field with similar achievements.						

17. Choose the issue or issues of gender in which you think that you have observed more and explain how you have worked on it.

18. Did you feel more aware of these inequalities than before?
   ☐ I think I have observed less inequalities than before.

   ☐ I think I have observed the same inequalities than before.

   ☐ I think I have observed a bit more inequalities than before.

   ☐ I think I have observed much more inequalities than before.

19. In case you have observed a bit or much more inequalities than before, what helped you to be more aware of them?

Thank you for your answers!