NGSS

IO5 Quality assurance –

Monitoring the impact of

multiplier events

Global Event Evaluation

Report

ΠΑΝΕΠΙΣΤΗΜΙΟ ΚΡΗΤΗΣ
UNIVERSITY OF CRETE

Project Information

Project acronym   NGSS

Project title   **Next Generation Science Standards through STEAM**

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Introduction

During the final year of the NGSS project, a series of multiplier events took place in the partner countries. There were several multiplier events organized in the partner countries. The major multiplier event was organised in Türkiye and was an International Conference on STEAM practices. Other countries, such as Greece, collaborated with local policymakers and invited parents to their multiplier events. **The partners collaboratively constructed and used a multiplier event evaluation questionnaire to evaluate the quality and overall organisation of the event.**

Description of the questionnaire:

The questionnaire comprised of 19 questions:

- 4 multiple-choice questions

- 9 rating questions

- And 6 open-ended questions

Please find below the revised text with corrected grammar, spelling, and punctuation errors:

The following subjects were covered during the evaluation:
The participants' occupation
• Expectations from the multiplier events and the extent to which these expectations were met
• The quality of the overall organization
• The quality of the content presented
• An evaluation of the duration and structure of the event
• The suitability of the venue used for the event
• The quality of the methods and materials used at the event
• An evaluation of the presenters' and trainers' work and communication with the participants
• The favourite takeaways and difficulties during the event
• The usefulness of the training and participants' willingness to recommend it to colleagues
• Further advice to the organizers of the event

The project partners collectively agreed on the above questions. The questionnaire was made available both online through Google Forms and in print for areas without internet access.

We will now present the results for each question in the upcoming sectionsp, and we will summarise the outcomes at the end.

Normality test

Before the criteria, we examined whether the distribution of scores of the dependent variables is normal (i.e. each variable has the greatest frequency of scores in the middle section). The data analysis revealed that the data follow the normal distribution; thus, we can use parametric tests.

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent

Satisfaction level	518	100,0%	0	0,0%	518	100,0%
Overall organization evaluation	518	100,0%	0	0,0%	518	100,0%
Content evaluation	518	100,0%	0	0,0%	518	100,0%
Event duration	476	91,9%	42	8,1%	518	100,0%
Event structure	476	91,9%	42	8,1%	518	100,0%
Venue appropriateness	476	91,9%	42	8,1%	518	100,0%
Methods & Approached Evaluation	476	91,9%	42	8,1%	518	100,0%
Materials evaluation	475	91,7%	43	8,3%	518	100,0%
Presenters work evaluation	476	91,9%	42	8,1%	518	100,0%
Effective communication with presenters	474	91,5%	44	8,5%	518	100,0%
The usefulness of the training I	476	91,9%	42	8,1%	518	100,0%
The usefulness of the training II	476	91,9%	42	8,1%	518	100,0%
The usefulness of the training III	475	91,7%	43	8,3%	518	100,0%
The usefulness of the training IV	467	90,2%	51	9,8%	518	100,0%
Training recommendation	463	89,4%	55	10,6%	518	100,0%

Descriptives

			Statistic	Std. Error
Satisfaction level	Mean		5,30	,037
	95% Confidence Interval for Mean	Lower Bound	5,22	
		Upper Bound	5,37	
	5% Trimmed Mean		5,39	
	Median		5,00	
	Variance		,728	
	Std. Deviation		,853	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		1	
	Skewness		-1,511	,107
	Kurtosis		3,194	,214

Overall organization evaluation	Mean		5,54	,033
	95% Confidence Interval for Mean	Lower Bound	5,47	
		Upper Bound	5,60	
	5% Trimmed Mean		5,64	
	Median		6,00	
	Variance		,562	
	Std. Deviation		,750	
	Minimum		2	
	Maximum		6	
	Range		4	
	Interquartile Range		1	
	Skewness		-2,155	,107
	Kurtosis		6,036	,214
Content evaluation	Mean		5,30	,038
	95% Confidence Interval for Mean	Lower Bound	5,22	
		Upper Bound	5,37	
	5% Trimmed Mean		5,39	
	Median		5,00	
	Variance		,762	
	Std. Deviation		,873	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		1	
	Skewness		-1,540	,107
	Kurtosis		3,053	,214
Event duration	Mean		5,46	,036
	95% Confidence Interval for Mean	Lower Bound	5,39	
		Upper Bound	5,53	
	5% Trimmed Mean		5,56	
	Median		6,00	
	Variance		,620	
	Std. Deviation		,787	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		1	
	Skewness		-1,825	,112
	Kurtosis		4,420	,223
Event structure	Mean		5,48	,035
	95% Confidence Interval for Mean	Lower Bound	5,41	
		Upper Bound	5,55	
	5% Trimmed Mean		5,57	
	Median		6,00	
	Variance		,574	
	Std. Deviation		,758	
	Minimum		2	
	Maximum		6	
	Range		4	

	Interquartile Range		1	
	Skewness		-1,721	,112
	Kurtosis		3,499	,223
Venue appropriateness	Mean		5,44	,043
	95% Confidence Interval for Mean	Lower Bound	5,35	
		Upper Bound	5,52	
	5% Trimmed Mean		5,57	
	Median		6,00	
	Variance		,874	
	Std. Deviation		,935	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		1	
	Skewness		-2,003	,112
	Kurtosis		4,148	,223
Methods & Approached Evaluation	Mean		5,56	,033
	95% Confidence Interval for Mean	Lower Bound	5,50	
		Upper Bound	5,63	
	5% Trimmed Mean		5,65	
	Median		6,00	
	Variance		,533	
	Std. Deviation		,730	
	Minimum		2	
	Maximum		6	
	Range		4	
	Interquartile Range		1	
	Skewness		-1,818	,112
	Kurtosis		3,409	,223
Materials evaluation	Mean		5,64	,030
	95% Confidence Interval for Mean	Lower Bound	5,58	
		Upper Bound	5,69	
	5% Trimmed Mean		5,73	
	Median		6,00	
	Variance		,426	
	Std. Deviation		,653	
	Minimum		2	
	Maximum		6	
	Range		4	
	Interquartile Range		1	
	Skewness		-2,021	,112
	Kurtosis		4,573	,224
Presenters work evaluation	Mean		5,73	,028
	95% Confidence Interval for Mean	Lower Bound	5,68	
		Upper Bound	5,79	
	5% Trimmed Mean		5,83	
	Median		6,00	
	Variance		,360	
	Std. Deviation		,600	
	Minimum		2	

	Maximum		6	
	Range		4	
	Interquartile Range		0	
	Skewness		-2,748	,112
	Kurtosis		9,165	,223
Effective communication with presenters	Mean		1,02	,007
	95% Confidence Interval for Mean	Lower Bound	1,00	
		Upper Bound	1,03	
	5% Trimmed Mean		1,00	
	Median		1,00	
	Variance		,025	
	Std. Deviation		,158	
	Minimum		1	
	Maximum		3	
	Range		2	
	Interquartile Range		0	
	Skewness		10,366	,112
	Kurtosis		114,957	,224
Personal opinion	Mean		1,31	,021
	95% Confidence Interval for Mean	Lower Bound	1,27	
		Upper Bound	1,35	
	5% Trimmed Mean		1,29	
	Median		1,00	
	Variance		,213	
	Std. Deviation		,462	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		,841	,112
	Kurtosis		-1,298	,223
Personal opinion	Mean		1,24	,020
	95% Confidence Interval for Mean	Lower Bound	1,20	
		Upper Bound	1,28	
	5% Trimmed Mean		1,21	
	Median		1,00	
	Variance		,184	
	Std. Deviation		,429	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		0	
	Skewness		1,211	,112
	Kurtosis		-,535	,223
Personal opinion	Mean		1,70	,021
	95% Confidence Interval for Mean	Lower Bound	1,66	
		Upper Bound	1,74	
	5% Trimmed Mean		1,72	
	Median		2,00	
	Variance		,210	

	Std. Deviation		,458	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		-,881	,112
	Kurtosis		-1,229	,224
Personal opinion	Mean		1,26	,020
	95% Confidence Interval for Mean	Lower Bound	1,22	
		Upper Bound	1,30	
	5% Trimmed Mean		1,23	
	Median		1,00	
	Variance		,192	
	Std. Deviation		,439	
	Minimum		1	
	Maximum		2	
	Range		1	
	Interquartile Range		1	
	Skewness		1,103	,113
	Kurtosis		-,786	,225
Training recommendation	Mean		1,06	,013
	95% Confidence Interval for Mean	Lower Bound	1,03	
		Upper Bound	1,08	
	5% Trimmed Mean		1,00	
	Median		1,00	
	Variance		,075	
	Std. Deviation		,273	
	Minimum		1	
	Maximum		3	
	Range		2	
	Interquartile Range		0	
	Skewness		5,328	,113
	Kurtosis		29,970	,226

Countries

There were 518 respondents from 6 countries. The majority of respondents were from Greece (303, 58,5%), followed by Romania (88, 17%) and Türkiye (46, 8,9%).

| Countries		Frequency	Percent
	Turkey	46	8,9
	Greece	303	58,5
	Romania	88	17,0
	Lithuania	42	8,1
	Bulgaria	20	3,9
	Poland	19	3,7
	Total	518	100,0
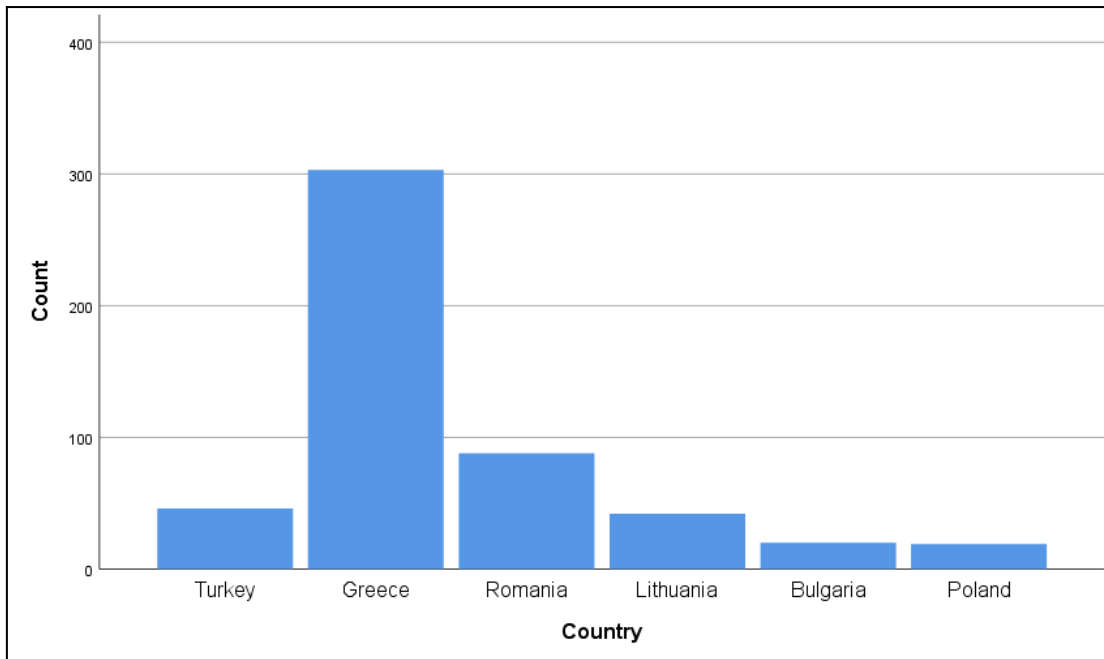
Results by Question

Question 1 – The participants' occupation

Regarding the participants' occupation, there was a distribution of professions, with the majority of them belonging to the kindergarten/preschool group (56,6%) followed by primary school teachers (19,9%).

	Occupations	Frequency	Percent
	Kindergarten/preschool group	293	56,6
	Primary school teacher	103	19,9
	Secondary school teacher	5	1,0
	Manager/School Director	22	4,2
	Preschool Education Advisor/Member of the National Directorate/Policymaker	6	1,2
	Student Teacher	30	5,8
	Educational Support Specialist	7	1,4
	Special Secondary School	1	,2
	Parent/guardian	36	6,9
	University faculty member	7	1,4
	School administrator	2	,4
	Project expert/manager	2	,4
	Vocational Education or Training	4	,8
	Total	518	100,0
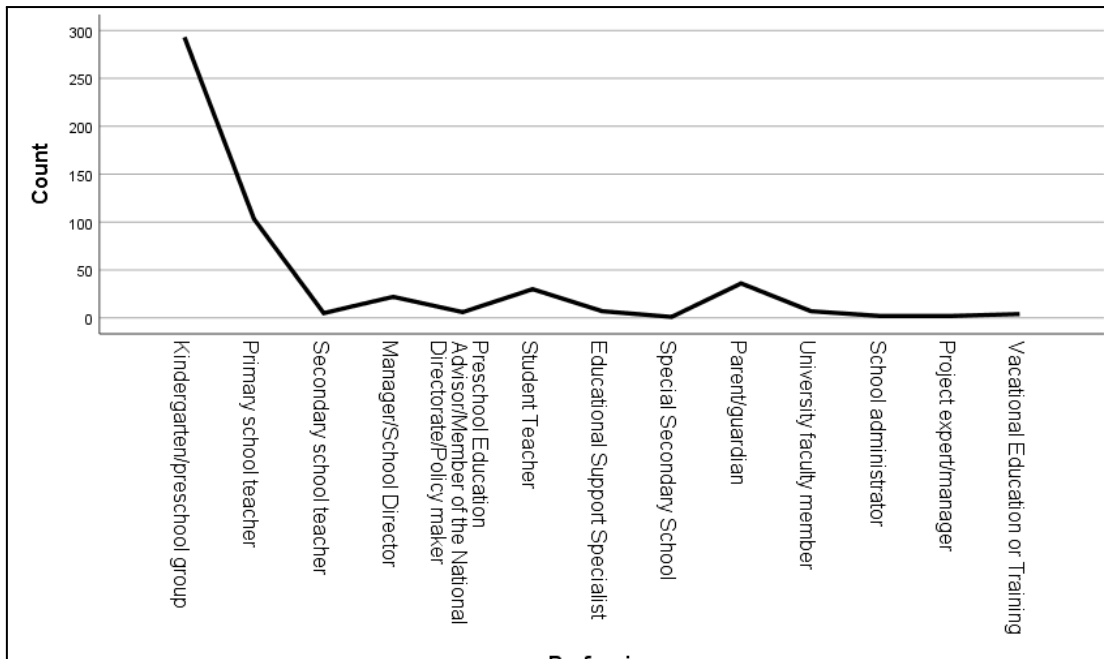
Question 2 – The participants' expectations

Question 2 asked the participants to write their expectations from the event. Here is a summary of what they mentioned:

Country	Expectations
Türkiye	Educators attending the NGSS Conference in Turkiye had varied expectations related to STEAM education. They were eager to gain new perspectives and knowledge from international experts, learn innovative teaching methods, and understand how to implement STEAM activities in their classrooms. Collaboration, networking, and cultural exchange were also important to them. Overall, the educators were enthusiastic about enhancing their professional skills, sharing experiences, and improving STEAM education for their students through the insights gained at the conference.
Greece	Kindergarten teachers had various expectations such as gaining new knowledge and skills, learning new teaching methods, incorporating art into science education, and participating in European programs that promote science education in kindergarten. The teachers also expressed a desire to learn about new techniques for organizing classroom activities and promoting children's interest in learning. They hoped to gain practical knowledge and collaborate with other educators to enhance their teaching practices.
Romania	The top motivations for attendance included a desire to acquire new knowledge and a willingness for developing professionally. Respondents were also attracted by the prospect of novelty, inventiveness, innovation, progress, and pedagogical news. A significant number of respondents were interested in gaining a

|	
	better understanding of the STEAM approach and its implementation in the classroom. Furthermore, many respondents expressed a specific interest in learning more about Design Thinking. Other reasons for attending the multiplier event(s) included sharing good practices of STEAM education, and receiving clear and quality information. Practical activities and workshops, as well as a relaxing atmosphere and play, were among the least common reasons for attendance.
Bulgaria	The participants of the multiplier event had various expectations, including learning new things, exchanging experiences with colleagues, updating their knowledge of interesting methods, and gathering new ideas and materials related to STEM and STEAM education. The event provided an opportunity to meet these expectations and exceeded them in some cases.
Poland	The participants of the multiplier events in Poland had a wide range of expectations, including learning something new, meeting new people, expanding their knowledge, understanding how the AuReSSEL platform works, gaining new skills, and finding out detailed information about STEAM teaching. Some participants were particularly interested in learning about good teaching practices and understanding methods of teaching children in the context of STEAM. Overall, the events were seen as engaging, inspiring, and an opportunity to meet new people, with a focus on acquiring knowledge and skills related to STEAM teaching.

In summary, the educators attending the events had expectations such as gaining new knowledge and skills, learning new teaching methods, incorporating art into science education, and participating in European programs that promote science education in kindergarten. They also hoped to gain practical knowledge and collaborate with other educators to enhance their teaching practices. Similarly, educators attending the NGSS Conference in Türkiye had varied expectations about STEAM education. They were eager to gain new perspectives and knowledge from international experts, learn innovative teaching methods, and understand how to implement STEAM activities in their classrooms. Collaboration, networking, and cultural exchange were also important to them. Overall, the participants of the events were enthusiastic about enhancing their professional skills, sharing experiences, and improving STEAM education for their students through the insights gained at the conferences. The top motivations for attendance included a desire for professional development, novelty, and innovation.

Question 3 - The extent to which the above expectations were met

In this survey participants were asked if their expectations from Question 2 were fulfilled. Almost all of them responded positively, indicating that they were satisfied with their experience. The mean score on a six-point Likert scale was 5,3, which indicates a high level of satisfaction. Additionally, the standard deviation was relatively low at 0,853, indicating that there was a high degree of agreement among respondents.

Satisfaction level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not quite	2	,4	,4	,4
	Little	3	,6	,6	1,0
	Moderately	16	3,1	3,1	4,1
	Much	48	9,3	9,3	13,3
	A great deal	198	38,2	38,2	51,5
	Exceeded my expectations	251	48,5	48,5	100,0
	Total	518	100,0	100,0	
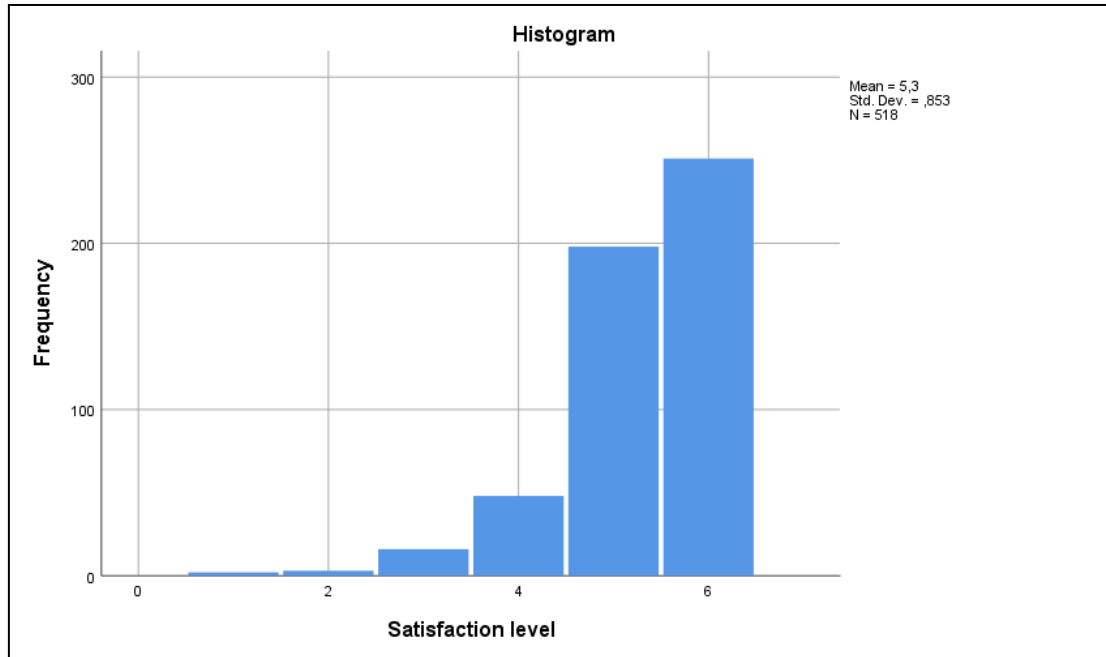
Mean = 5,3
Std. Dev. = ,853
N = 518

Furthermore, we used the bivariate Pearson Correlation to determine whether participants' origin (countries) and their expectations correlate. The results revealed no correlation (non-significant) between countries and satisfaction, meaning that all countries' satisfaction levels are the same.

Descriptive Statistics			
	Mean	Std. Deviation	N
Country	2,51	1,124	518
Satisfaction level	5,30	,853	518

Correlations			
		Country	Satisfaction level
Country	Pearson Correlation	1	,085
	Sig. (2-tailed)		,053
	N	518	518
Satisfaction level	Pearson Correlation	,085	1
	Sig. (2-tailed)	,053	
	N	518	518

We also tried to determine the relationship between profession and satisfaction level. There was a low, positive correlation between profession and satisfaction level, which was statistically significant (r = .178, n = 518, p = .000).

Descriptive Statistics			
	Mean	Std. Deviation	N
Satisfaction level	5,30	,853	518
Profession	2,63	2,776	518

Correlations		Satisfaction level	Profession
Satisfaction level	Pearson Correlation	1	,178**
	Sig. (2-tailed)		,000
	N	518	518
Profession	Pearson Correlation	,178**	1
	Sig. (2-tailed)	,000	
	N	518	518
**. Correlation is significant at the 0.01 level (2-tailed).			

Further analysis revealed that the Managers/School Directors, Special Secondary School, University faculty members and School administrators were the most positive in their answers.

| Report			
Satisfaction level			
Profession	Mean	N	Std. Deviation
Kindergarten/preschool group	5,12	293	,951
Primary school teacher	5,43	103	,636
Secondary school teacher	4,80	5	,447
Manager/School Director	6,00	22	,000

Preschool Education Advisor/Member of the National Directorate/Policymaker	5,50	6	,837
Student Teacher	5,77	30	,626
Educational Support Specialist	5,86	7	,378
Special Secondary School	6,00	1	.
Parent/guardian	5,33	36	,632
University faculty member	6,00	7	,000
School administrator	6,00	2	,000
Project expert/manager	5,00	2	1,414
Vocational Education or Training	5,25	4	,500
Total	5,30	518	,853

Question 4 - The quality of the overall organization

Participants were asked to rate the overall organization of the multiplier event they attended in Question 4. Most participants rated the organization as excellent in their answers, as the mean of their answer on a six-point Likert scale was 5,54. It is also important to note that the standard deviation was relatively low (0,750), indicating a high level of agreement between the participants.

Statistics		
Overall organization evaluation		
N	Valid	518
	Missing	0
Mean		5,54
Std. Deviation		,750
Minimum		2
Maximum		6

Overall organization evaluation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Slightly satisfactory	7	1,4	1,4	1,4
	Moderately satisfactory	5	1,0	1,0	2,3
	Quite satisfactory	24	4,6	4,6	6,9
	Very satisfactory	149	28,8	28,8	35,7
	Excellent	333	64,3	64,3	100,0
	Total	518	100,0	100,0	
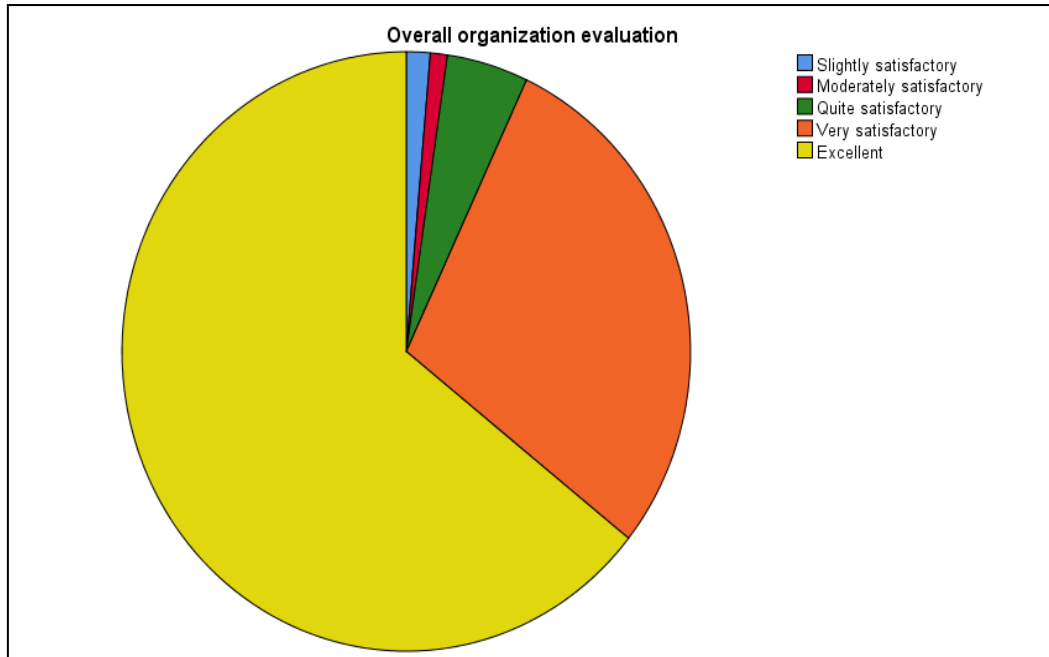
Overall organization evaluation

Furthermore, we used the bivariate Pearson Correlation to determine whether participants' origin (countries) and their answers correlate. The results revealed a low, positive correlation between profession and satisfaction level, which was statistically significant (r = .173, n = 518, p = .000).

Descriptive Statistics

	Mean	Std. Deviation	N
Country	2,51	1,124	518
Overall organization evaluation	5,54	,750	518

Correlations

		Country	Overall organization evaluation
Country	Pearson Correlation	1	,173**
	Sig. (2-tailed)		,000
	N	518	518
Overall organization evaluation	Pearson Correlation	,173**	1
	Sig. (2-tailed)	,000	
	N	518	518
**. Correlation is significant at the 0.01 level (2-tailed).			

Further analysis revealed the following results: Romanians were the most satisfied, followed by the Lithuanians.

Report

Overall organization evaluation

Country	Mean	N	Std. Deviation
Turkey	5,67	46	,560
Greece	5,32	303	,857

Romania	6,00	88	,000
Lithuania	5,90	42	,297
Bulgaria	5,85	20	,366
Poland	5,42	19	,607
Total	5,54	518	,750

We also analyzed if there is a correlation between participants' profession and their answers. We also used the bivariate Pearson Correlation. The results revealed a low, positive correlation between profession and satisfaction level, which was statistically significant (r = .143, n = 518, p = .001).

Descriptive Statistics			
	Mean	Std. Deviation	N
Overall organization evaluation	5,54	,750	518
Profession	2,63	2,776	518

Correlations		Overall organization evaluation	Profession
Overall organization evaluation	Pearson Correlation	1	,143[**]
	Sig. (2-tailed)		,001
	N	518	518
Profession	Pearson Correlation	,143[**]	1
	Sig. (2-tailed)	,001	
	N	518	518
**. Correlation is significant at the 0.01 level (2-tailed).			

Further analysis revealed that the Managers/School Directors, Student Teachers, Educational Support Specialists, Special Secondary schools and School administrators were the most positive in their answers.

Case Processing Summary			
	Cases		
	Included	Excluded	Total

	N	Percent	N	Percent	N	Percent
Overall organization evaluation * Profession	518	100,0%	0	0,0%	518	100,0%

| **Report**			
Overall organization evaluation			
Profession	Mean	N	Std. Deviation
Kindergarten/preschool group	5,38	293	,873
Primary school teacher	5,71	103	,498
Secondary school teacher	5,40	5	,548
Manager/School Director	6,00	22	,000
Preschool Education Advisor/Member of the National Directorate/Policymaker	5,83	6	,408
Student Teacher	6,00	30	,000
Educational Support Specialist	6,00	7	,000
Special Secondary School	6,00	1	.
Parent/guardian	5,50	36	,609
University faculty member	5,71	7	,488
School administrator	6,00	2	,000
Project expert/manager	5,50	2	,707
Vocational Education or Training	5,50	4	,577
Total	5,54	518	,750

Question 5 – The quality of the content in terms of new things learnt

For the fifth question, we requested the participants to evaluate the material presented in each multiplier event. The feedback received from the participants indicated that they found the event content highly informative. The mean score of their responses was significantly high (5,30) with a minimal standard deviation (0,873), signifying a unanimous agreement among the participants.

Statistics		
Content evaluation		
N	Valid	518
	Missing	0
Mean		5,30
Std. Deviation		,873
Minimum		1
Maximum		6

Content evaluation				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid					
	No new things learned	1	,2	,2	,2
	I learned a few things	8	1,5	1,5	1,7
	I learned a few things	11	2,1	2,1	3,9
	What I learned is above average	52	10,0	10,0	13,9
	I learned many new things	191	36,9	36,9	50,8
	I learned a lot	255	49,2	49,2	100,0
	Total	518	100,0	100,0	
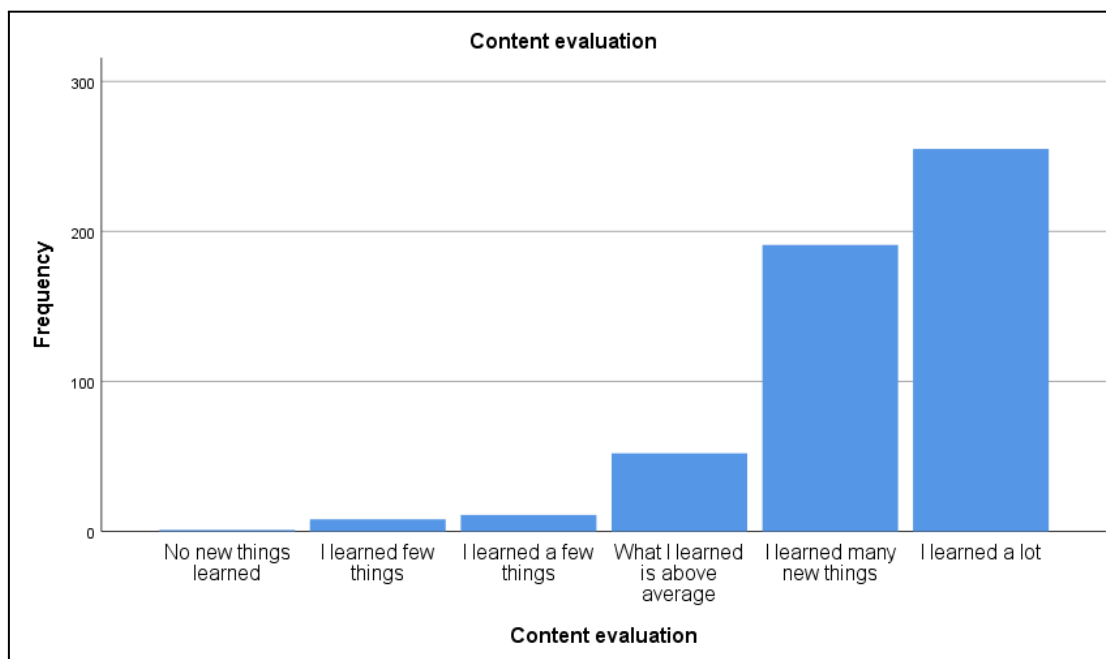
Content evaluation

Furthermore, we used the bivariate Pearson Correlation to determine whether participants' origin (countries) and their answers correlate. The results revealed a non-significant correlation between countries and their answers.

Descriptive Statistics			
	Mean	Std. Deviation	N
Country	2,51	1,124	518
Content evaluation	5,30	,873	518

Correlations			
		Country	Content evaluation
Country	Pearson Correlation	1	-,074
	Sig. (2-tailed)		,094
	N	518	518
Content evaluation	Pearson Correlation	-,074	1
	Sig. (2-tailed)	,094	
	N	518	518

We also analyzed if there is a correlation between the participants' profession and their answers. We also used the bivariate Pearson Correlation. The results revealed a low, positive correlation between profession and satisfaction level, which was statistically significant (r = .154, n = 518, p = .000).

Descriptive Statistics			
	Mean	Std. Deviation	N
Content evaluation	5,30	,873	518
Profession	2,63	2,776	518

Correlations		Content evaluation	Profession
Content evaluation	Pearson Correlation	1	,154[**]
	Sig. (2-tailed)		,000
	N	518	518
Profession	Pearson Correlation	,154[**]	1
	Sig. (2-tailed)	,000	
	N	518	518
**. Correlation is significant at the 0.01 level (2-tailed).			

Further analysis revealed that the Student Teacher and Educational Support Specialists were the most positive in their answers.

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Content evaluation * Profession	518	100,0%	0	0,0%	518	100,0%

Report			
Content evaluation			
Profession	Mean	N	Std. Deviation
Kindergarten/preschool group	5,23	293	,922
Primary school teacher	5,13	103	,925
Secondary school teacher	4,80	5	,837
Manager/School Director	5,45	22	,510
Preschool Education Advisor/Member of the National Directorate/Policymaker	5,83	6	,408
Student Teacher	5,90	30	,305
Educational Support Specialist	5,86	7	,378
Special Secondary School	5,00	1	.
Parent/guardian	5,53	36	,696
University faculty member	5,57	7	,535
School administrator	5,50	2	,707
Project expert/manager	5,00	2	1,414
Vocational Education or Training	5,25	4	,500
Total	5,30	518	,873

Question 6 - Evaluation of the event duration

In Question 6 of our survey, we asked the participants to evaluate the duration of each event. The participants rated the duration of the events as optimal. The mean score of their responses was relatively high (5,46), with a slight standard deviation (0,787). This indicates that the majority of the participants agreed on their thoughts regarding the event duration.

Statistics		
Event duration		
N	Valid	476
	Missing	42
Mean		5,46
Std. Deviation		,787

Event duration					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Sufficient	1	,2	,2	,2
	Slightly sufficient	3	,6	,6	,8
	Moderately sufficient	9	1,7	1,9	2,7
	Quite sufficient	33	6,4	6,9	9,7
	Very sufficient	146	28,2	30,7	40,3
	Optimal	284	54,8	59,7	100,0
	Total	476	91,9	100,0	
Missing	System	42	8,1		
Total		518	100,0		
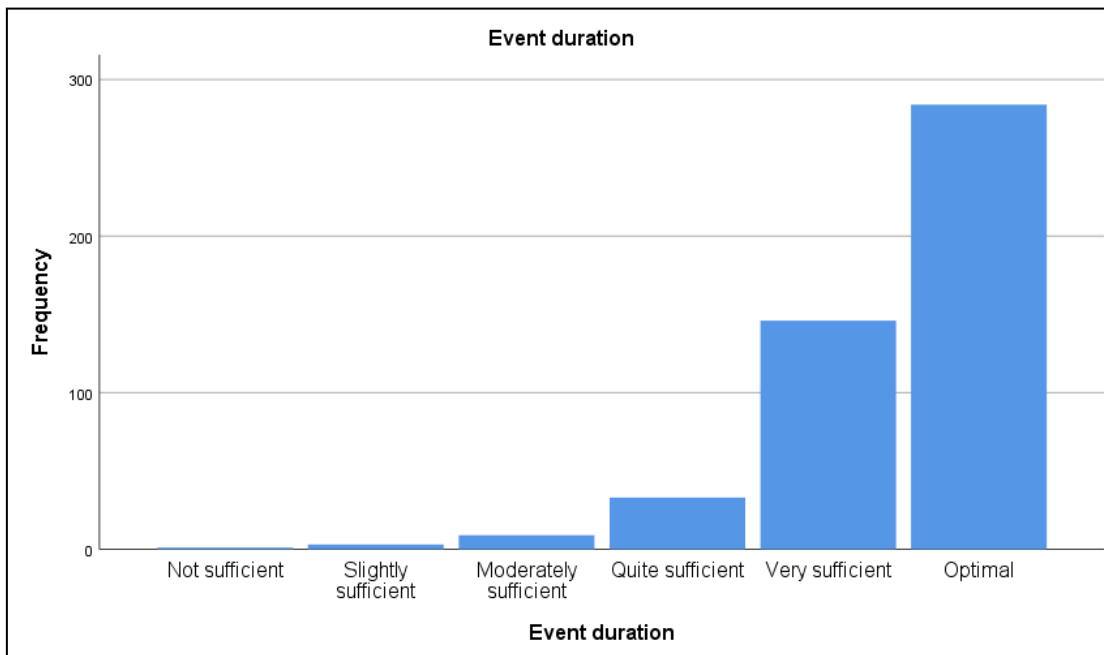
We used bivariate Pearson correlation to analyze the relationship between participants' countries of origin and their answers. The results showed no significant correlation between the two variables.

Descriptive Statistics			
	Mean	Std. Deviation	N
Event duration	5,46	,787	476
Country	2,51	1,124	518

Correlations		Event duration	Country
Event duration	Pearson Correlation	1	,056
	Sig. (2-tailed)		,219
	N	476	476
Country	Pearson Correlation	,056	1
	Sig. (2-tailed)	,219	
	N	476	518

We conducted an analysis to determine if there is a connection between the participants' profession and their responses. To do this, we used the bivariate Pearson Correlation method. The findings indicated a weak but positive correlation between profession and satisfaction level, which was statistically significant (r = .122, n = 476, p = .008).

Descriptive Statistics			
	Mean	Std. Deviation	N
Event duration	5,46	,787	476
Profession	2,63	2,776	518

Correlations		Event duration	Profession
Event duration	Pearson Correlation	1	,122[**]
	Sig. (2-tailed)		,008
	N	476	476
Profession	Pearson Correlation	,122[**]	1
	Sig. (2-tailed)	,008	
	N	476	518

**. Correlation is significant at the 0.01 level (2-tailed).

Further analysis revealed that the Special Secondary School teachers, University faculty members and School administrators were the most positive in their answers.

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Event duration * Profession	476	91,9%	42	8,1%	518	100,0%

| Report			
Event duration			
Profession	Mean	N	Std. Deviation
Kindergarten/preschool group	5,37	293	,873
Primary school teacher	5,54	89	,604
Secondary school teacher	5,80	5	,447
Preschool Education Advisor/Member of the National Directorate/Policymaker	5,67	6	,816
Student Teacher	5,73	30	,583
Educational Support Specialist	5,50	2	,707
Special Secondary School	6,00	1	.
Parent/guardian	5,56	36	,652
University faculty member	6,00	7	,000
School administrator	6,00	1	.
Project expert/manager	5,50	2	,707
Vocational Education or Training	5,50	4	,577
Total	5,46	476	,787

Question 7 – Evaluation of the event structure

In Question 7, the participants were asked to rate the structure of the multiplier event they attended. According to their evaluations, the event structure was considered excellent. Their answers had a high average score of 5,48 with a slightly low standard deviation of 0,787, indicating that almost all participants agreed on their thoughts.

Statistics		
Event structure		
N	Valid	476
	Missing	42
Mean		5,48
Std. Deviation		,787

Event structure				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Slightly satisfactory	3	,6	,6	,6
	Moderately satisfactory	11	2,1	2,3	2,9
	Quite satisfactory	26	5,0	5,5	8,4
	Very satisfactory	151	29,2	31,7	40,1
	Excellent	285	55,0	59,9	100,0
	Total	476	91,9	100,0	
Missing	System	42	8,1		
Total		518	100,0		
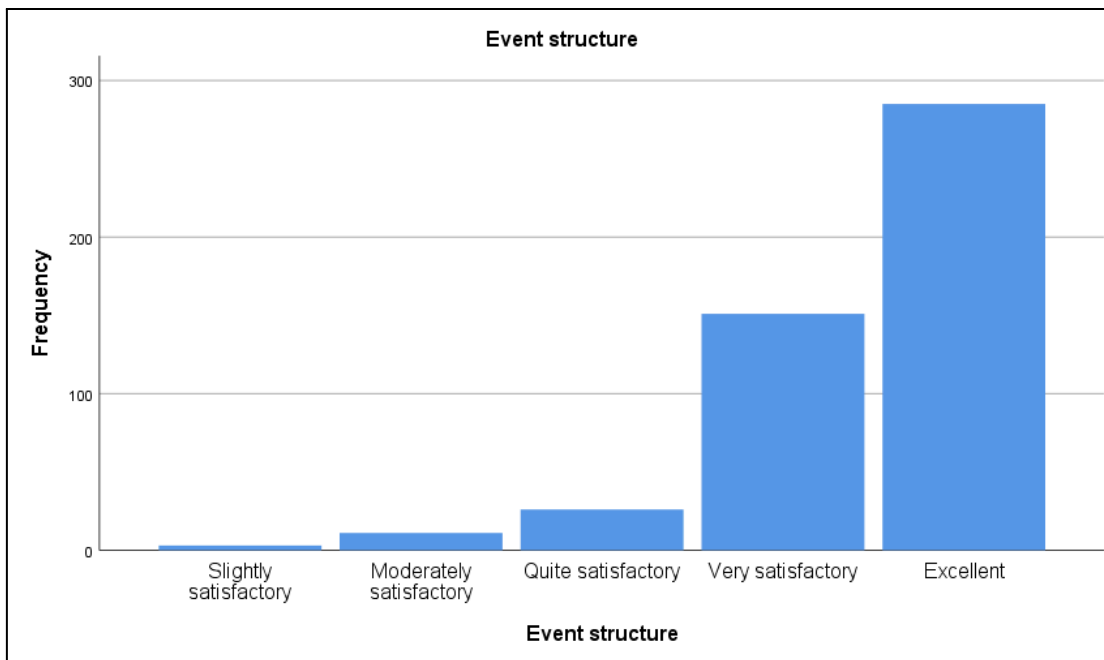
We utilized bivariate Pearson Correlation to determine if there is a correlation between participants' origin (countries) and their answers. The results showed that there was no significant correlation found between participants' countries and their answers.

Descriptive Statistics

	Mean	Std. Deviation	N
Event structure	5,48	,758	476
Country	2,51	1,124	518

Correlations

		Event structure	Country
Event structure	Pearson Correlation	1	,038
	Sig. (2-tailed)		,408

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		476	476
Country	Pearson Correlation	,038	1
	Sig. (2-tailed)	,408	
	N	476	518

We conducted an analysis to determine any potential correlation between respondents' occupation and their responses. Utilizing the bivariate Pearson Correlation, we discovered a statistically significant, albeit weak, positive correlation between profession and overall satisfaction (r = .125, n = 476, p = .006).

Descriptive Statistics			
	Mean	Std. Deviation	N
Event structure	5,48	,758	476
Profession	2,63	2,776	518

Correlations			
		Event structure	Profession
Event structure	Pearson Correlation	1	,125[**]
	Sig. (2-tailed)		,006
	N	476	476
Profession	Pearson Correlation	,125[**]	1
	Sig. (2-tailed)	,006	
	N	476	518
**. Correlation is significant at the 0.01 level (2-tailed).			

Upon further analysis, we discovered that the student teachers, educational support specialists, special secondary school teachers, and school administrators provided the most positive responses.

Case Processing Summary						
	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Event structure * Profession	476	91,9%	42	8,1%	518	100,0%

Report

Event structure

Profession	Mean	N	Std. Deviation
Kindergarten/preschool group	5,35	293	,846
Primary school teacher	5,65	89	,546
Secondary school teacher	5,40	5	,894
Preschool Education Advisor/Member of the National Directorate/Policymaker	5,83	6	,408
Student Teacher	6,00	30	,000
Educational Support Specialist	6,00	2	,000
Special Secondary School	6,00	1	.
Parent/guardian	5,50	36	,609
University faculty member	5,71	7	,488
School administrator	6,00	1	.
Project expert/manager	5,50	2	,707
Vocational Education or Training	5,25	4	,500
Total	5,48	476	,758

Question 8 – Additional comments regarding the duration and structure of the multiplier events

Question 8 allowed the participants to write additional comments regarding the duration and structure of the events. Here is a summary of what they mentioned:

Country	Comments
Türkiye	The feedback for the NGSS Conference was overwhelmingly positive, with attendees expressing satisfaction with the event's structure, duration, organization, and content. They appreciated the opportunity to learn from educators from different countries and found the workshops to be valuable, suggesting that longer durations for workshops could be beneficial. Overall, the conference was well-received, with participants highlighting the innovative topics and the productive nature of the event.
Greece	The feedback from the participants of the event in Greece was generally positive, with many expressing satisfaction with the organization and structure of the event. With reference to the two-day conference organized in June 2023, some participants suggested that the duration of the event was a bit long due

	to the simultaneous workshops, but they appreciated the flexibility in choosing which workshops to attend. There were also comments about the need for more practical workshops and experiential learning. Overall, the participants appreciated the organization of the event but suggested some improvements in terms of duration and workshop variety.
Romania	Participants provided positive feedback regarding the optimal structure and duration, friendly trainers, alert program, and well-organized workshops and facilities. Some participants suggested having workshops at different hours to allow for participation in all of them.
Bulgaria	Relatively small number of respondents provided additional information, most of them confirming their satisfaction of positive rating regarding the duration and structure. Two meaningful remarks can be separated among the comments: one of them was a recommendation for longer breaks which would allow non-formal communication between the participants; the second remark was related to unmet expectations for information on the National STEM program, which was not the aim of the event.
Poland	Polish participants also commented that they would like longer training, but overall, they found the activities very engaging, interesting, and well-organised.

In summary, the additional comments regarding the duration and structure of the multiplier events were overwhelmingly positive, with satisfaction expressed regarding the structure, duration, organization, and content of the events. Participants appreciated the opportunity to learn from educators from different countries and found the workshops valuable. While some suggested longer durations for workshops and longer breaks to allow interactions with colleagues, overall, the events were well-received. Suggestions for improvement included the need for more practical workshops, experiential learning, and workshop variety.

Question 9 – Evaluation of the suitability of the venue used for the event

In Question 9, participants rated the multiplier event venue as almost excellent with a mean score of 5,44 and a slight standard deviation of 0,935, indicating a high level of agreement among participants.

Statistics		
Venue appropriateness		
N	Valid	476
	Missing	42
Mean		5,44
Std. Deviation		,935

Venue appropriateness		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not appropriate	2	,4	,4	,4
	Slightly appropriate	7	1,4	1,5	1,9

	Moderately appropriate	18	3,5	3,8	5,7
	Quite appropriate	33	6,4	6,9	12,6
	Very appropriate	109	21,0	22,9	35,5
	Excellent	307	59,3	64,5	100,0
	Total	476	91,9	100,0	
Missing	System	42	8,1		
Total		518	100,0		

Venue appropriateness
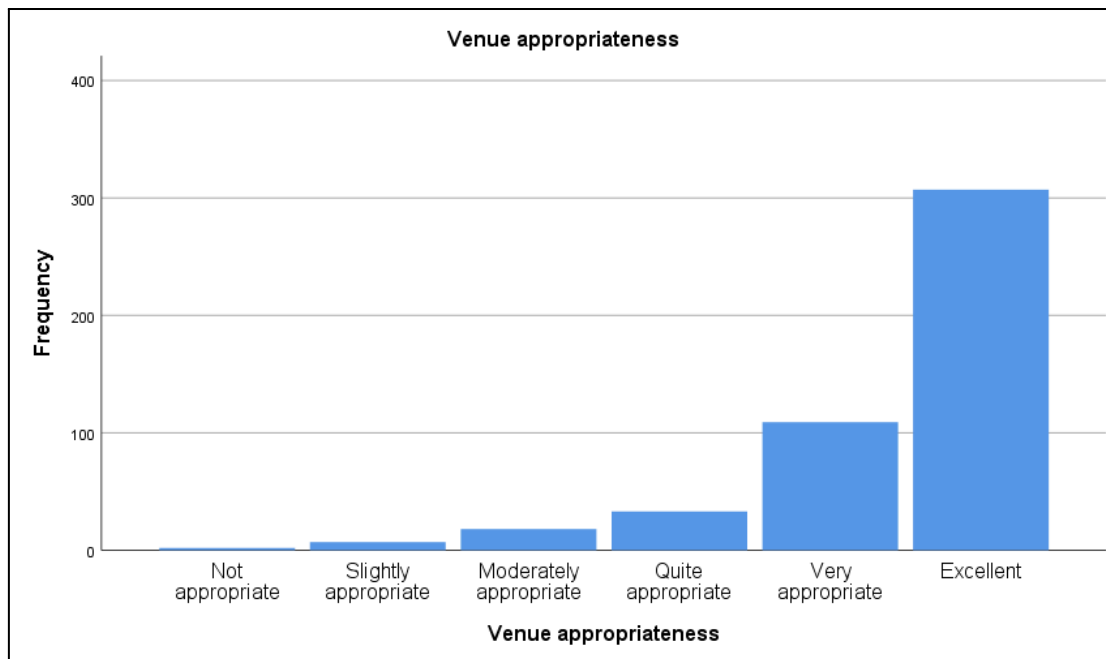
We utilized the bivariate Pearson Correlation to investigate if there was a correlation between the participants' countries of origin and their answers. The findings showed a significant but weak positive correlation between the participants' countries and their answers (r = .100, n = 476, p = .029).

Descriptive Statistics			
	Mean	Std. Deviation	N
Venue appropriateness	5,44	,935	476
Country	2,51	1,124	518

Correlations			
		Venue appropriateness	Country
Venue appropriateness	Pearson Correlation	1	,100[*]
	Sig. (2-tailed)		,029
	N	476	476
Country	Pearson Correlation	,100[*]	1
	Sig. (2-tailed)	,029	
	N	476	518
*. Correlation is significant at the 0.05 level (2-tailed).			

Further analysis revealed that participants in Romania and Turkiye were the most satisfied with the venue of their multiplier events.

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Venue appropriateness * Country	476	91,9%	42	8,1%	518	100,0%

Report

Venue appropriateness

Country	Mean	N	Std. Deviation
Turkey	5,80	46	,500
Greece	5,20	303	1,062
Romania	6,00	88	,000
Bulgaria	5,85	20	,366
Poland	5,32	19	,582
Total	5,44	476	,935

Moreover, we conducted an analysis to determine if there is a relationship between the professions of the participants and their corresponding answers. We employed the bivariate Pearson Correlation method for this purpose. Our findings indicated a statistically significant positive correlation, albeit low, between the answers given by the participants and their countries of origin (r = .159, n = 476, p = .001).

Descriptive Statistics

	Mean	Std. Deviation	N
Venue appropriateness	5,44	,935	476
Profession	2,63	2,776	518

Correlations

		Venue appropriateness	Profession
Venue appropriateness	Pearson Correlation	1	,159[**]
	Sig. (2-tailed)		,001
	N	476	476
Profession	Pearson Correlation	,159[**]	1

	Sig. (2-tailed)	,001	
	N	476	518

**. Correlation is significant at the 0.01 level (2-tailed).

Upon further analysis, Secondary school teachers, Student Teachers, Special Secondary Schools, and School administrators displayed the most positive responses.

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Venue appropriateness * Profession	476	91,9%	42	8,1%	518	100,0%

Report

Venue appropriateness

Profession	Mean	N	Std. Deviation
Kindergarten/preschool group	5,26	293	1,086
Primary school teacher	5,69	89	,535
Secondary school teacher	6,00	5	,000
Preschool Education Advisor/Member of the National Directorate/Policymaker	5,67	6	,516
Student Teacher	6,00	30	,000
Educational Support Specialist	5,50	2	,707
Special Secondary School	6,00	1	.
Parent/guardian	5,61	36	,599
University faculty member	5,71	7	,488
School administrator	6,00	1	.
Project expert/manager	5,50	2	,707
Vocational Education or Training	5,50	4	,577

Total			5,44	476	,935

Question 10 – The quality of the methods and approaches used at the events

In question 10 of the survey, the participants were asked to evaluate the effectiveness of the methods and approaches used in the multiplier events. They rated the methods and approaches as almost excellent, with a mean score of 5,56 and a slight standard deviation of 0,73. This indicates that almost all participants agreed on their positive evaluation of the methods and materials used.

Statistics		
Methods & Approached Evaluation		
N	Valid	476
	Missing	42
Mean		5,56
Std. Deviation		,730

Methods & Approaches Evaluation			Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Slightly appropriate		2	,4	,4	,4
	Moderately appropriate		7	1,4	1,5	1,9
	Quite appropriate		35	6,8	7,4	9,2
	Very appropriate		109	21,0	22,9	32,1
	Excellent		323	62,4	67,9	100,0
	Total		476	91,9	100,0	
Missing	System		42	8,1		
Total			518	100,0		

Methods & Approached evaluation
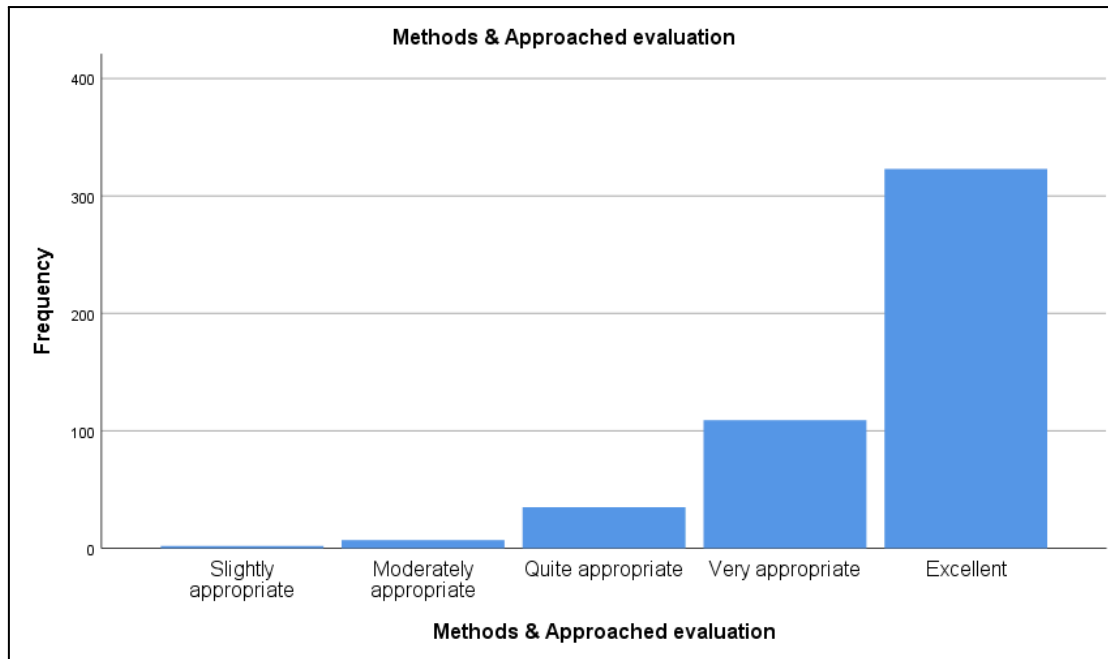
We used bivariate Pearson Correlation to examine the correlation between participants' countries and their answers. The findings showed no significant correlation.

Descriptive Statistics			
	Mean	Std. Deviation	N
Methods & Approached Evaluation	5,56	,730	476
Country	2,51	1,124	518

Correlations		Methods & Approached Evaluation	Country
Methods & Approached Evaluation	Pearson Correlation	1	,007
	Sig. (2-tailed)		,871
	N	476	476
Country	Pearson Correlation	,007	1
	Sig. (2-tailed)	,871	
	N	476	518

We conducted an analysis to determine if there is a link between the participants' profession and their responses. To do this, we employed the bivariate Pearson Correlation. The findings indicated a weak yet significant positive correlation between participants' countries and their answers (r = .117, n = 476, p = .011).

Descriptive Statistics

	Mean	Std. Deviation	N
Methods & Approached Evaluation	5,56	,730	476
Profession	2,63	2,776	518

Correlations

		Methods & Approached Evaluation	Profession
Methods & Approached Evaluation	Pearson Correlation	1	,117[*]
	Sig. (2-tailed)		,011
	N	476	476
Profession	Pearson Correlation	,117[*]	1
	Sig. (2-tailed)	,011	
	N	476	518
*. Correlation is significant at the 0.05 level (2-tailed).			

Upon further analysis, the Student Teachers, Educational Support Specialists, Special Secondary School, and School administrators were found to have the most positive responses.

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
Methods & Approached evaluation * Profession	476	91,9%	42	8,1%	518	100,0%

Report

Methods & Approached Evaluation

Profession	Mean	N	Std. Deviation
Kindergarten/preschool group	5,45	293	,816
Primary school teacher	5,72	89	,564
Secondary school teacher	5,80	5	,447

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Preschool Education Advisor/Member of the National Directorate/Policymaker	5,83	6	,408
Student Teacher	6,00	30	,000
Educational Support Specialist	6,00	2	,000
Special Secondary School	6,00	1	.
Parent/guardian	5,64	36	,593
University faculty member	5,86	7	,378
School administrator	6,00	1	.
Project expert/manager	5,00	2	,000
Vocational Education or Training	5,25	4	,500
Total	5,56	476	,730

Question 11 – The quality of the materials used in the events

In Question 11, the survey participants were asked to rate the quality of the materials used in the multiplier events. The participants assessed the materials to be of almost excellent quality. The average score of their answers was very high (5,64), with only a slight standard deviation (0,653), indicating that almost all participants agreed on their assessment.

Statistics		
Materials evaluation		
N	Valid	475
	Missing	43
Mean		5,64
Std. Deviation		,653

Materials evaluation						
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Slightly adequate	1	,2	,2	,2
	Moderately adequate	6	1,2	1,3	1,5
	Quite adequate	22	4,2	4,6	6,1

	Very adequate	107	20,7	22,5	28,6
	Excellent	339	65,4	71,4	100,0
	Total	475	91,7	100,0	
Missing	System	43	8,3		
Total		518	100,0		

Materials evaluation
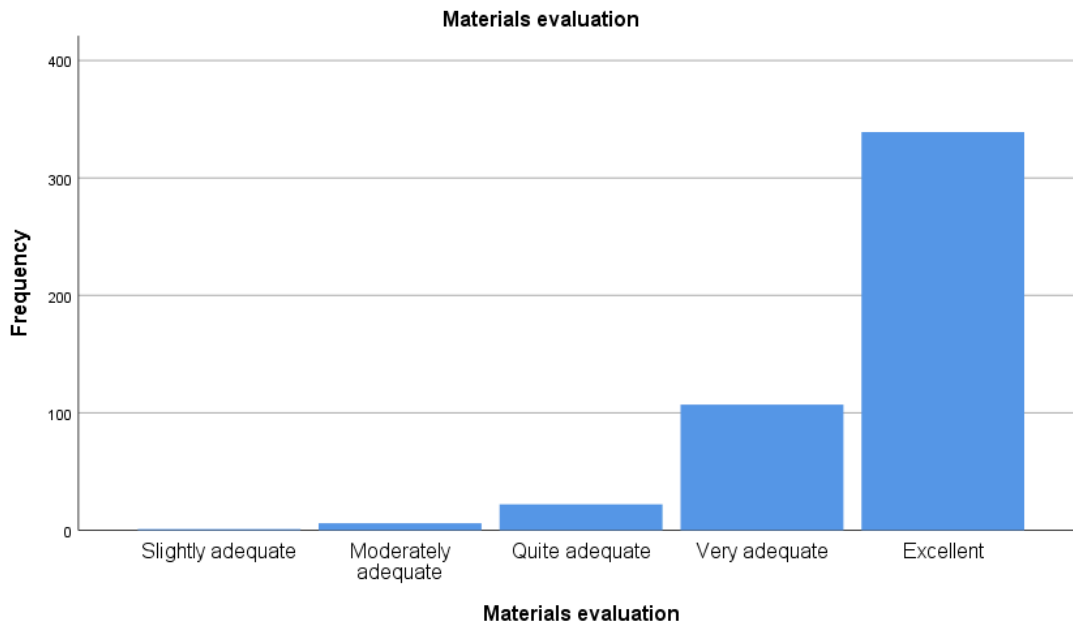
We used bivariate Pearson Correlation to determine if participants' country of origin and their answers were correlated. The results showed no significant correlation between their country of origin and their answers.

Descriptive Statistics			
	Mean	Std. Deviation	N
Country	2,51	1,124	518
Presenters work evaluation	5,73	,600	476

Correlations			
		Country	Presenters work evaluation
Country	Pearson Correlation	1	,028
	Sig. (2-tailed)		,547
	N	518	476
Presenters work evaluation	Pearson Correlation	,028	1

	Sig. (2-tailed)	,547	
	N	476	476

We tested for a correlation between participants' profession and their answers using bivariate Pearson Correlation. However, the results showed no significant correlation.

Descriptive Statistics			
	Mean	Std. Deviation	N
Presenters work evaluation	5,73	,600	476
Profession	2,63	2,776	518

Correlations		Presenters work evaluation	Profession
Presenters work evaluation	Pearson Correlation	1	,078
	Sig. (2-tailed)		,088
	N	476	476
Profession	Pearson Correlation	,078	1
	Sig. (2-tailed)	,088	
	N	476	518

Question 12 – Additional comments regarding the methods, approaches and materials used in the multiplier events

Question 12 allowed the participants to write additional comments regarding the methods, approaches and materials used in the events. Here is a summary of what they mentioned:

Country	Comments
Türkiye	The additional comments from attendees at the NGSS Conference highlighted the positive aspects of the workshops, such as their appeal to children, suitability of materials, and the practical knowledge gained. Some attendees expressed a desire for more workshops and deeper knowledge about course design with a STEAM approach. Overall, the conference was praised for its organization and the diverse teaching strategies offered. While there were some suggestions for improvement, such as more opportunities to participate in workshops, the general sentiment was positive.
Greece	The comments from the educational workshops in Greece reflect a high level of satisfaction and enthusiasm. Participants expressed a desire for more workshops and practical ideas, as well as a need for access to additional teaching materials and information. They also highlighted the importance of

	hands-on experiences and the positive impact of collaborative activities involving both educators and parents. Overall, the feedback indicates a strong interest in further exploration of STEAM (Science, Technology, Engineering, Arts, Mathematics) approaches and a desire for continued professional development in this area.
Romania	The feedback from participants in the multiplier events was overwhelmingly positive, with many expressing interest in future workshops and exchanging experiences with other teachers. The gamification approach and the use of effective approaches and materials were praised. Some participants requested working models of the presented projects. There were also requests for more workshops based on the Scamper method and for more information about STEAM projects.
Bulgaria	The feedback from Bulgaria includes positive comments about the suitability of materials used and a desire for more hands-on activities and inquiry-based learning. Attendees were eagerly anticipating the activity book and would like to see more seminars and mentoring support materials.
Poland	Polish participants expressed their interest in taking part in similar training sessions. They found the methods, approaches, and materials used during the session very interesting.

In summary, the additional comments regarding the methods, approaches and materials used in various educational events, including the NGSS Conference, educational workshops in Greece, and other multiplier events, were overwhelmingly positive. Attendees praised the appeal of the workshops to children, the suitability of materials, and the practical knowledge gained. There was a strong desire for more workshops, mentoring and deeper knowledge about course design with a STEAM approach. Participants also expressed enthusiasm for hands-on experiences, collaborative activities, and the positive impact of STEAM approaches. Overall, there was a strong interest in further exploration of STEAM approaches and a desire for continued professional development in this area. Additionally, participants expressed interest in future workshops, exchanging experiences with other teachers, and the need for more information about STEAM projects. Some participants also indicated a desire for more in-depth training and examples of how these methods can be differentiated to meet different student needs. The overall sentiment was one of enthusiasm and a desire for further engagement in similar training sessions.

Question 13 - Evaluation of the presenters' and trainers' work

In Question 13, we asked the participants to evaluate the quality of the work done by the presenters and trainers. The participants rated their work as excellent, with a mean score of 5,73 and a small standard deviation of 0,6. This indicates that almost all participants agreed on the quality of the work done by the presenters and trainers.

Statistics		
Presenters work evaluation		
N	Valid	476
	Missing	42
Mean		5,73

Std. Deviation	,600

Presenters work evaluation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Slightly satisfactory	2	,4	,4	,4
	Moderately satisfactory	3	,6	,6	1,1
	Quite satisfactory	18	3,5	3,8	4,8
	Very satisfactory	74	14,3	15,5	20,4
	Excellent	379	73,2	79,6	100,0
	Total	476	91,9	100,0	
Missing	System	42	8,1		
Total		518	100,0		
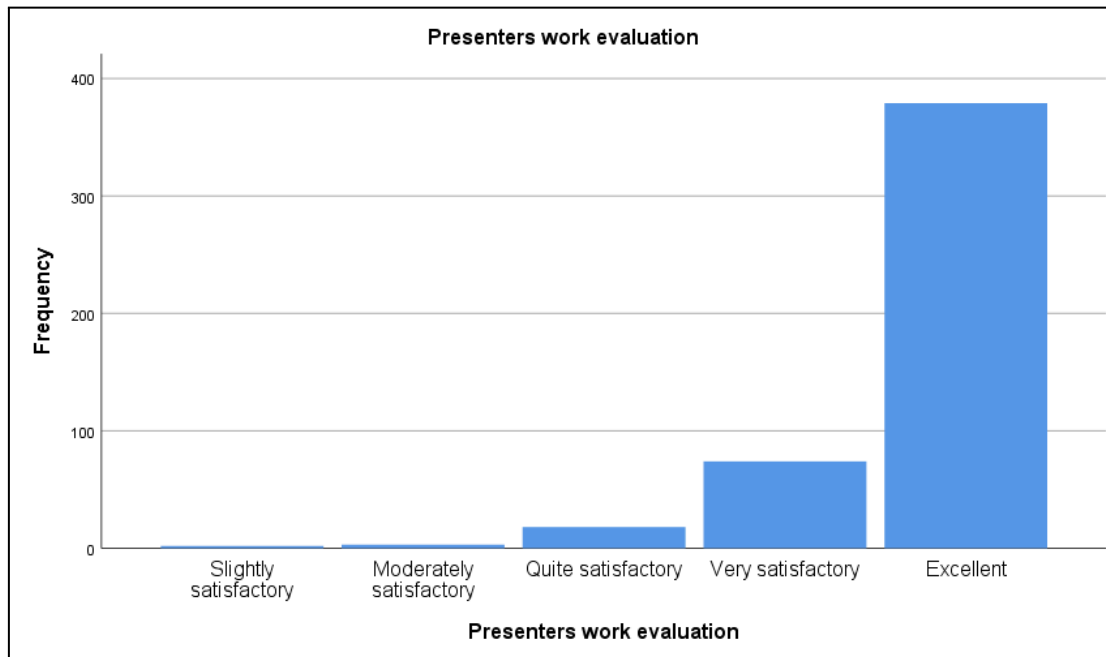
We utilized the bivariate Pearson Correlation analysis to investigate the correlation between participants' countries of origin and their responses. The results indicated that there was no significant correlation between the participants' countries and their responses.

Descriptive Statistics

	Mean	Std. Deviation	N
Effective communication with presenters	1,02	,158	474
Country	2,51	1,124	518

Correlations

		Effective communication with presenters	Country
Effective communication with presenters	Pearson Correlation	1	-,061
	Sig. (2-tailed)		,182
	N	474	474
Country	Pearson Correlation	-,061	1
	Sig. (2-tailed)	,182	
	N	474	518

We analyzed the correlation between participants' profession and answers using bivariate Pearson Correlation but found no significant relationship.

Descriptive Statistics

	Mean	Std. Deviation	N
Effective communication with presenters	1,02	,158	474
Profession	2,63	2,776	518

Correlations

		Effective communication with presenters	Profession
Effective communication with presenters	Pearson Correlation	1	,075
	Sig. (2-tailed)		,103
	N	474	474
Profession	Pearson Correlation	,075	1
	Sig. (2-tailed)	,103	
	N	474	518

Question 14 – The quality of the presenters' communication with their audience

In Question 14, the participants were asked if they had adequate communication with the presenters when they asked questions or made comments. Out of 474 respondents, 463 answered that they had sufficient communication with the presenters.

Statistics		
Effective communication with presenters		
N	Valid	474
	Missing	44
Mean		1,02
Std. Deviation		,158

Effective communication with presenters					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	468	90,3	98,7	98,7
	No	4	,8	,8	99,6
	Oher	2	,4	,4	100,0
	Total	474	91,5	100,0	
Missing	System	44	8,5		
Total		518	100,0		
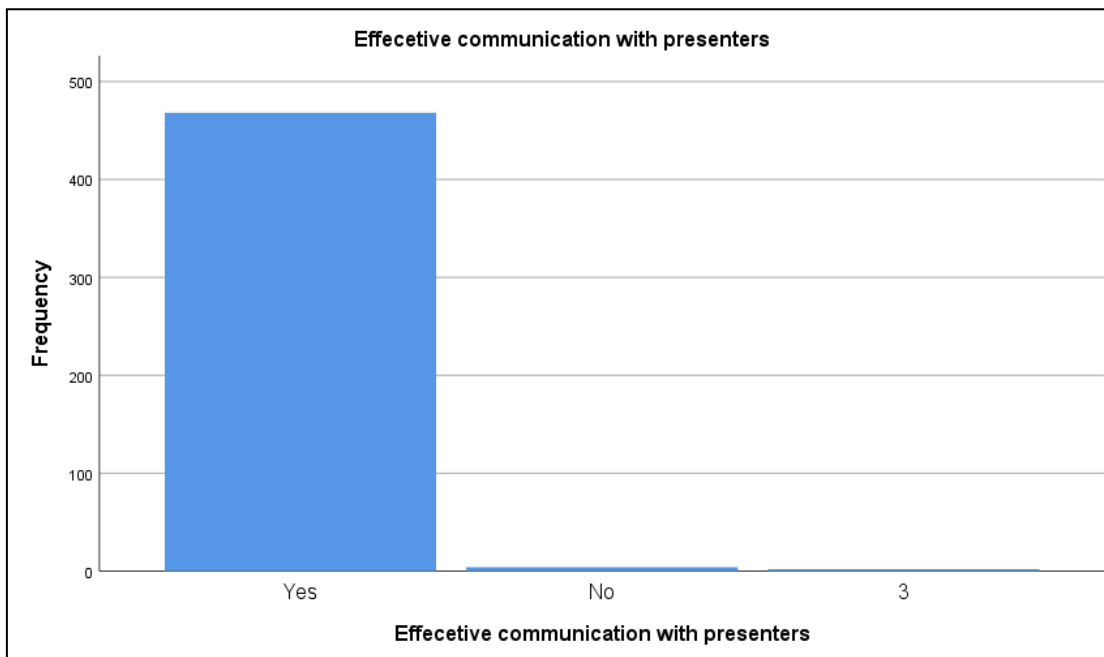
We utilized the bivariate Pearson Correlation to examine the relationship between participants' country of origin and their responses. The results revealed no significant correlation.

Descriptive Statistics

	Mean	Std. Deviation	N
Effective communication with presenters	1,02	,158	474
Country	2,51	1,124	518

Correlations

		Effective communication with presenters	Country
Effective communication with presenters	Pearson Correlation	1	-,061
	Sig. (2-tailed)		,182
	N	474	474
Country	Pearson Correlation	-,061	1
	Sig. (2-tailed)	,182	
	N	474	518

Furthermore, we used the bivariate Pearson Correlation to determine whether participants' profession and their answers correlate. The results revealed a non-significant correlation between participants' countries and their answers.

Descriptive Statistics

	Mean	Std. Deviation	N
Effective communication with presenters	1,02	,158	474
Profession	2,63	2,776	518

Correlations

		Effective communication with presenters	Profession
Effective communication with presenters	Pearson Correlation	1	,075
	Sig. (2-tailed)		,103
	N	474	474
Profession	Pearson Correlation	,075	1
	Sig. (2-tailed)	,103	

		N	474	518

Question 15 – Favourite takeaways from the multiplier events

Question 15 allowed the participants to highlight their favourite takeaways from the multiplier events. Here is a summary of what they mentioned:

Country	Favourite takeways
Türkiye	The feedback from the NGSS conference attendees highlighted a variety of favorite takeaways from the event. These included positive experiences with workshops, presentations, and school tours, as well as the opportunity to learn new teaching methods and network with passionate educators. The importance of arts integration, the impact of STEAM on multidimensional student development, and the significance of connections in STEAM education were also emphasized. Additionally, the creation of the AuReSSEL platform and the use of design thinking were noted as valuable aspects of the conference. Overall, the event was praised for its fruitful sessions, efficient organization, and the opportunity to observe and experience STEAM practices from different countries.
Greece	Participants discussed the experiential nature of the event, the role of Physical Sciences in education, inquiry-based learning, the interaction with educators, and the harmonious connection between art and science. They found that the event included workshops, presentations, and collaborative activities, with a focus on the enthusiastic participation of children and the use of diverse materials. The STEAM approach and the use of hands-on experiments were highlighted, along with the positive interaction between participants. Overall, the event provided valuable insights and inspiration for science education practices.
Romania	Participants in Romania expressed their enjoyment and appreciation for the valuable conference, the STEAM approach, the sense of community, and the new learning experiences. The atmosphere was described as warm and welcoming, with enthusiasm from the participants.
Bulgaria	The multiplier events were a source of inspiration and new ideas for the participants. They had the opportunity to exchange views with colleagues, learn about the Montessori method, gain practical experience, and make useful contacts. The Lego workshop and design thinking were particularly interesting, and attendees left with ideas for activities to implement with their students.
Lithuania	The Lithuanian participants highlighted the importance of embracing change, staying motivated, and maintaining a positive attitude. They emphasized the need to engage the brain, be open to new possibilities, and work towards success with a great mood. The feedback also mentions the relevance and good organization of the multiplier event, and encouraged not being afraid of change and cooperating for success.
Poland	The participants that attended the Polish multiplier event indicated that they gained various takeaways such as inspiration, increased knowledge, practical tips, exchange of experiences, and examples of lessons that can be used in the classroom. The event was well-run and provided modules and lesson plans related to STEAM teaching. The user plans to apply the knowledge gained in their own work or classroom.

In summary, participants at the NGSS multiplier events highlighted positive experiences with workshops, presentations, and school tours, as well as the opportunity to learn new teaching methods and network with passionate educators. The event emphasized the importance of arts integration, the impact of STEAM on multidimensional student development, and the significance of connections in STEAM education. Additionally, the creation of the AuReSSEL platform, the use of design thinking and the Montessori method were noted as valuable aspects of the multiplier events. Overall, the events were praised for their fruitful sessions, efficient organization, and the opportunity to observe and experience STEAM practices from different countries.

Question 16 – The difficulties participants faced in multiplier events

Question 16 allowed the participants to write about the difficulties they faced during the multiplier events. Here is a summary of what they mentioned:

Country	Difficulties
Türkiye	During the NGSS conference in Istanbul some participants faced difficulties such as language barriers, time constraints, and choosing between workshops. However, many participants did not encounter any major issues and found the event to be well-organized and enjoyable. Some participants expressed a desire for more time to study presentations and to hear about classroom implementations of the theory. Overall, the feedback suggests that the event was a success.
Greece	The participants generally expressed satisfaction with the organization of the event and did not report significant difficulties. Some mentioned minor issues such as the duration of the program, the venue, or the volume of participants. Overall, the feedback indicates that the event was well-organized and provided valuable knowledge and experiences for the participants.
Romania	The majority of the participants did not face any difficulty during the events, while only a few mentioned minor challenges. These challenges included having too many things on their mind, not being able to participate in all workshops, and difficulty understanding speeches in English. The events were successful overall.
Bulgaria	Most of the respondents didn't have difficulties during the event. Nevertheless, two of them mentioned that they were challenged to understand the SCAMPER method.
Poland	Polish participants mentioned difficulties such as choosing a topic, absorbing a large amount of information at once, or understanding the platform and the help offered to overcome those difficulties. They also expressed difficulties in understanding the project's outcomes and how to apply the knowledge they gained in real life.

In summary, the NGSS multiplier events were generally well-organized and successful, with most participants expressing satisfaction and not reporting significant difficulties. Some minor issues were mentioned, such as language barriers, time constraints, and choosing between workshops. A few participants expressed their difficulty in understanding the SCAMPER method. Polish participants also mentioned difficulties in understanding the project's outcomes and how to apply the knowledge gained in real life.

Question 17 – The usefulness and impact of the training/multiplier event on participants' practice

Question 17 prompted the participants to show the usefulness and impact the training offered in the multiplier events had on their practice. Based on their answers, most participants believe that what they learned during this event may influence their teaching styles (n=330, 63,7%), they can use activities and materials they saw in this event in their practice (n=361, 69,7%) and that the training inspired them to try new things in their practice (n=346, 66,8%). Fewer participants commented that the activities and materials used in the multiplier events require adaptation before they can use them in their practice (n=142, 27,4%).

	What I learned during this event may influence my teaching style	I can use activities and materials I saw in these events in my practice	The activities and materials require adaptation before I can use them in my practice	The training inspired me to try new things in my practice
Yes (Frequency)	330	361	142	346
Percent	63,7	69,7	27,4	66,8
Total	518	518	518	518

Question 18 – The participants' willingness to recommend the training offered in multiplier events to colleagues

In Question 18, participants were asked if they would recommend the training they received during the multiplier events to their colleagues. 95.5% of the participants (n=442) answered positively.

Statistics		
Training recommendation		
N	Valid	463
	Missing	55
Mean		1,06
Std. Deviation		,273

Training recommendation					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	442	85,3	95,5	95,5
	No	16	3,1	3,5	98,9
	Other	5	1,0	1,1	100,0
	Total	463	89,4	100,0	
Missing	0	1	,2		

	4	5	1,0		
	System	49	9,5		
	Total	55	10,6		
Total		518	100,0		

Training recommendation

Question 19 – General comments for the training offered in multiplier events

In Question 19 the participants were offered the opportunity to submit general comments to the organisers regarding the training they received in multiplier events. Their comments are as follows:

Country	Final comments
Türkiye	The feedback provided to the organisers of the conference was overwhelmingly positive, expressing gratitude for the well-organized activities, valuable insights gained, and the overall enriching experience. Participants expressed a desire for future involvement in similar events and suggested incorporating STEAM education into national curricula. Additionally, there was a request for more time to spend in the science interactive museum of Üsküdar. The feedback also included expressions of appreciation, requests for future participation, and congratulations to the Turkish team.
Greece	The feedback provided includes positive comments about the STEAM approach used in the event, the need for more training on inquiry-based learning, and the desire for more ready-made lesson plans. Participants also expressed interest in attending similar events in the future and suggested themes for future training sessions. Overall, the feedback was positive, and participants appreciated the opportunity to improve their professional skills.
Romania	Approximately half of the participants responded with thanks and/or congratulations and the other half did not answer.
Bulgaria	This open question was used for generally positive feedback and appreciation for the event, which supports the previous responses. Two answers were

	addressing the national STEM program and obviously were not related to the focus of the event.
Lithuania	The feedback from the training was positive, with participants expressing their gratitude and appreciation for the well-organized and informative conference. The event was considered a success and left a lasting impression on those who attended.
Poland	One Polish participant noted that the event went very smoothly and during the meeting and learned a lot of information related to STEAM teaching and another one responded with thanks.

In summary, the final words noted in the evaluation of multiplier events were overwhelmingly positive, expressing gratitude for well-organized activities, valuable insights gained, and an overall enriching experience. Participants expressed a desire for future involvement in similar events, suggested incorporating STEAM education into national curricula, and requested more time in the science interactive museum of Üsküdar. Participants also indicated a need for more training on inquiry-based learning and desired more ready-made lesson plans. Overall, the feedback was positive, with expressions of appreciation and requests for future participation. Some participants also expressed interest in mastering NGSS methodologies and future project activities. The organisers were commended for their efforts, and the event was considered a success.

Summarising

This report discusses the successful multiplier events organized by the NGSS project partners, including an International Conference on STEAM practices in Türkiye and workshops in other partner countries. The evaluation questionnaire used during these events covered various aspects such as participants' expectations, the quality of organization and content, venue suitability, and the effectiveness of methods and materials used. The results indicated a high level of satisfaction and enthusiasm among the participants, with positive feedback on the appeal of the workshops, suitability of materials, and practical knowledge gained. There was also a strong interest in further exploration of STEAM approaches and a desire for continued professional development in this area. The participants rated the work of the presenters and trainers as excellent, indicating a high level of agreement on the quality of their work. Additionally, the feedback highlighted favourite takeaways from the events, such as positive experiences with workshops, presentations, and school tours, as well as the opportunity to learn new teaching methods and network with passionate educators. Overall, the feedback was overwhelmingly positive, expressing gratitude for well-organized activities, valuable insights gained, and an overall enriching experience, with requests for future involvement in similar events and suggestions for incorporating STEAM education into national curricula.

Appendix I – A short report about a multiplier event on 3rd of June 2023, in Sofia, Bulgaria

Authors of the Bulgarian evaluation report:
The Bulgarian partners submitted a report on the event, which is attached here.

Multiplier event on 3rd of June 2023 (Sofia)
The multiplier event was attended by 16 teachers who are willing to develop their skills as mentors and trainers to their colleagues particularly in the STEM and STEAM field. This event was organised in the context of the NGSS project aim of *supporting teachers to become mentors* to their colleagues, providing guidelines and training to the facilitators. All participants in the event were in-service teachers.

The focus of the event was on introducing the NGSS methods and project outcomes and discussing their integration in the qualification programs of the CCTA for future use in trainings addressed to in-service teachers.

The feedback about the event was collected through alternative means, not though the NGSS dedicated tools for dissemination feedback.

The feedback was focused on the *applicability* of the NGSS methods for the children in pre-primary and primary school stage and the perceived *difficulties for adapting the materials* for the needs of the qualification trainings.

How applicable do you consider the following method…? (Fig.14)
Rated on the scale of 1 to 6 where 1 is "not at all applicable" and "very much applicable"
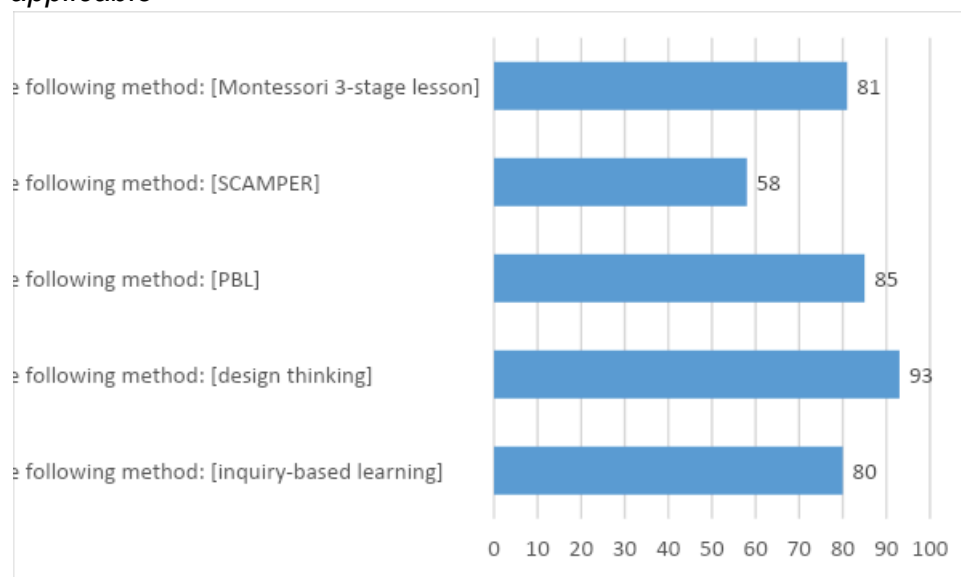
The *design-thinking* method was considered as most applicable among the NGSS methods, followed by the *problem-based learning* (PBL). This result might be attributed also to the fact that *design-thinking* is not completely unknown to Bulgarian teachers and is already used by some of them.
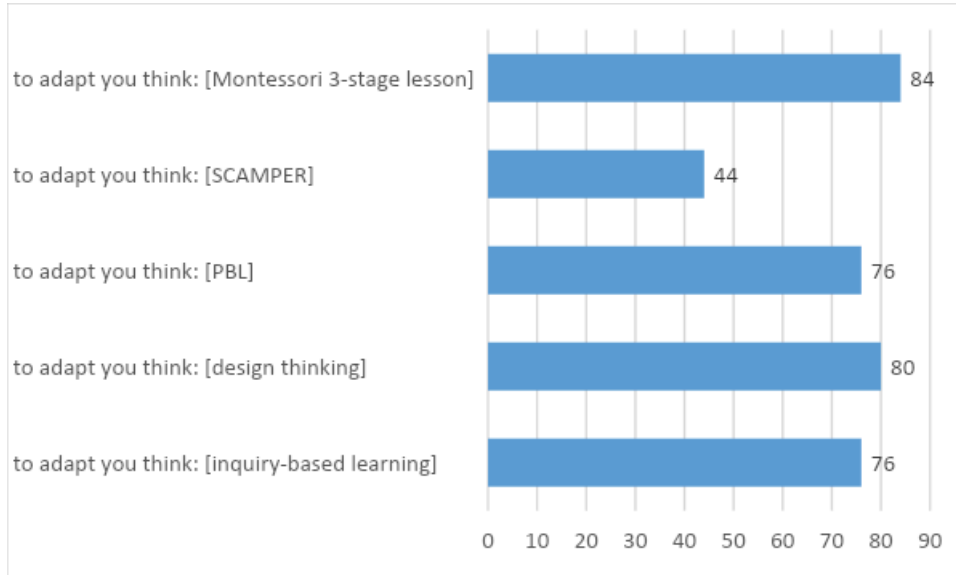
The *Montessori 3-period lesson* and *inquiry-based learning* had similar results in the middle of the rating, while SCAMPER was rated as *least applicable* among the presented methods.

Discussions revealed that some of the participants had concerns regarding the theoretical preparation that might be needed as a background for the effective implementation of both the *Montessori 3-period lesson* and *inquiry based learning*.

In general, the applicability of the methods was positively rated and only SCAMPER received some scores below the middle of the applied rating scale (with 2 or 3 points out of 6 maximum). The major concerns regarding SCAMPER were related to its

applicability with kids at younger age who should be stimulated to build understanding of consistency, causal relationships and systematic vision of processes, while the method stimulates the imaginative and whimsical interpretations instead. Hence, the pedagogical values of SCAMPER were considered doubtful, while it was admitted that the method is useful for supporting of the imagination and thinking out of the box.

How difficult to adapt do you think would be the following method…? (Fig.15)
Rated on the scale of 1 to 6 where 1 is "very difficult" and "not difficult at all"

Quite expected, the estimation of the difficulties for adapting the methods (Fig.15) is comparable to the rating their adaptability (Fig 14). The only exception is shown as regards the *Montessori 3-period lesson* for which the participants in the event estimated that its adaptability is even higher that its direct applicability for the considered groups of learners.

Presentation of the adaptability of the methods (blue line), compared to the perceived difficulties for their adjustment for implementation (orange line) **(Fig.16)**
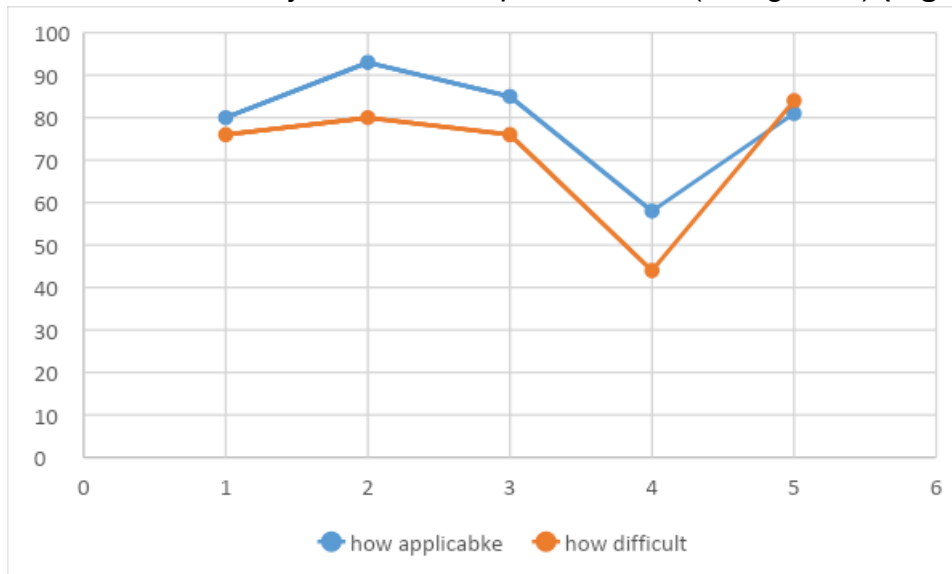
The methods are listed as follows:

1. inquiry-based learning
2. design thinking
3. PBL
4. SCAMPER
5. Montessori 3-stage lesson

The positive estimation on the adaptability is influenced by the fact that Montessori method is in use in some public kindergartens and schools in Plovdiv and there are trained teachers who can help for the development of competences and delivering training to the trainers.

There was a positive estimation of the applicability of the NGSS project outputs (NGSS Digital toolkit for teachers, NGSS Digital toolkit for students, NGSS Online

Guidebook) as supporting materials for the training workshops and for the further implementations.

The overall conclusion is that the NGSS outcomes and experience will be valuable addition to the STEM & STEAM in-service qualification programs which makes optimistic estimations for the future exploitation of the project results.

Additional information:

Which of the Project outputs were shared during the Multiplier Event?
- General presentation of the NGSS project and its outputs;
- Presentation of the AuRESSel;
- Presentation about the NGSS Digital toolkit for teachers with details on each method and exemplary lesson plans.

Profile of the trainers:
As trainers in the event took part the CCTA project team members – Reni Dimova and Alexander Angelov. Elena Varzilova – trainer and speaker for the leadership and mentoring topics was invited (external speaker; stakeholder).

Event activities:

Presentations, motivational speech, demonstrations of the NGSS project outputs, discussions on the applicability and adaptability of the NGSS methods for STEM & STEAM qualification trainings, sharing of resources.

The following pages present the questionnaire used to evaluate the multiplier events.

NGSS Multiplier Events Feedback

Dear Colleagues,

Thank you for attending the NGSS multiplier event session in [name of partners' city & country].
We would like to know your opinion regarding the event you just attended in order to consider appropriate improvements for its further sessions.
Please share your feedback by filling-in the questionnaire below. Your answers will be treated as confidential.
It will take you 10-15 minutes.
Thank you in advance!

* Indicates a mandatory question

1. 1/ Please, specify are you a teacher in... *
    If you mark "Other", please, provide details *Single answer.*

    ⬭ Kindergarten / pre-school group
    ⬭ Primary Other:

    ⬭ _____

2. Please, list 3 expectations you had about this multiplier event. *
    _____

3. To what extent have your expectations been met? *
    (Give a rate within the scale from 1 to 6 where 1 means "not quite" and 6 means "exceeded my expectations") *Single answer.*

    Not quite 1   2   3   4   5   6 Exceeded my expectations

4. Please, rate the overall organisation? *
    (For instance: timely start and end of the sessions, prompt provision of information, etc.;
    Use rates within the scale from 1 to 6 where 1 means "not satisfactory" and 6 means "excellent") *Single answer.*

    Not satisfactory 1   2   3   4   5   6 Excellent

5. How would you rate the content in terms of new things you learned during this event? *
    (Give a rate within the scale from 1 to 6 where 1 means "no new things learned" and 6 means "I learned a lot") *Single answer.*

    No new things learned 1   2   3   4   5   6 I learned a lot

6. How would you rate the duration of the event? *
    (Give a rate within the scale from 1 to 6 where 1 means "not sufficient" and 6 means "optimal") *Single answer.*

Not sufficient 1   2   3   4   5   6 Optimal

7. **How would you rate the structure of the event?** *
    (Give a rate within the scale from 1 to 6 where 1 means "not satisfactory" and 6 means "excellent") *Single answer.*

    Not satisfactory 1   2   3   4   5   6 Excellent

8. You are welcome to provide additional comments regarding duration and structure of the event, if you want:

    _____

9. **Was the venue appropriate for the multiplier event?** *
    (Consider the venue in terms of: size, light and arrangement appropriate for the number of trainees; suitable for the activities; well equipped, etc.; Give a rate within the scale from 1 to 6 where 1 means "not appropriate" and 6 means "excellent") *Single answer.*

    Not satisfactory 1   2   3   4   5   6 Excellent

10. **How would you rate the methods and approaches used?** *
    (Give a rate within the scale from 1 to 6 where 1 means "not appropriate" and 6 means "excellent") *Single answer.*

    Not appropriate 1   2   3   4   5   6 Excellent

11. How would you rate the materials used during the event (presentations, activity sheets, check-lists...)?
    (Give a rate within the scale from 1 to 6 where 1 means "not adequate" and 6 means "excellent") *Single answer.*

Not adequate 1   2   3   4   5   6 Excellent

12. If you want, you may provide additional comments regarding methods, approaches and materials used.
    (For instance: would love to hear more about underlying theories, too theoretical, would love to have more workshops..., etc.)

    _____

13. **How would you rate the work of the presenters?** *
    (Give a rate within the scale from 1 to 6 where 1 means "not satisfactory" and 6 means "excellent") *Single answer.*

    Not satisfactory 1   2   3   4   5   6 Excellent

14. **Did you have sufficient communication with the presenters when you had questions or comments?** *

(If you marked "other", please provide additional comments)

Single answer.

- ⬭ Yes
- ⬭ No
- ⬭ Other: _____

15. **What are your favourite takeaways from the event?** *

(You can write a free text, a topic or a title of session/s)

_____
_____
_____
_____
_____
_____

16. **What was the most difficult thing for you during this event?** *

_____
_____
_____
_____
_____
_____

17. **Would you say that...** *

(Tick all that is valid. If you thick "other", please, provide additional comments)
Choose all that apply (multiple answers)

- ☐ What you learned during this event may in influence your teaching styles.
- ☐ You can use activities and materials you saw in this event in your practice. The
- ☐ activities and materials require adaptation before you can use them in your practice.
- ☐ The training inspired you to try new things in your practice.
- ☐ Other: _____

18. **Would you recommend this training to your colleagues?** *

(If you have comments, thick "other" and provide details)

Single asnwer.

- ⬭ Yes
- ⬭ No
- ⬭ Other: _____

19. Use the space below if you would like to share something else with the organisers of the training:

_____

_____

_____

_____

_____