Replication package for 'On the Automatic Assessment of Computational Thinking Skills: A Comparison with Human Experts'

1 Scratch projects involved in the investigation

1. https://scratch.mit.edu/projects/58360800
2. https://scratch.mit.edu/projects/61198738
3. https://scratch.mit.edu/projects/72270372
4. https://scratch.mit.edu/projects/81363284
5. https://scratch.mit.edu/projects/81804696
6. https://scratch.mit.edu/projects/85192148
7. https://scratch.mit.edu/projects/85723084
8. https://scratch.mit.edu/projects/85742130
9. https://scratch.mit.edu/projects/86213117
10. https://scratch.mit.edu/projects/86270038
11. https://scratch.mit.edu/projects/86401601
12. https://scratch.mit.edu/projects/87060591
13. https://scratch.mit.edu/projects/87098706
14. https://scratch.mit.edu/projects/87187846
15. https://scratch.mit.edu/projects/87187952
16. https://scratch.mit.edu/projects/87231977
17. https://scratch.mit.edu/projects/87346467
18. https://scratch.mit.edu/projects/87352409
19. https://scratch.mit.edu/projects/87513869

20. https://scratch.mit.edu/projects/87658620
21. https://scratch.mit.edu/projects/87981829
22. https://scratch.mit.edu/projects/88050947
23. https://scratch.mit.edu/projects/88051462
24. https://scratch.mit.edu/projects/88052294
25. https://scratch.mit.edu/projects/88054931
26. https://scratch.mit.edu/projects/88061201
27. https://scratch.mit.edu/projects/88062130
28. https://scratch.mit.edu/projects/88084856
29. https://scratch.mit.edu/projects/88112466
30. https://scratch.mit.edu/projects/88114673
31. https://scratch.mit.edu/projects/88116533
32. https://scratch.mit.edu/projects/88122793
33. https://scratch.mit.edu/projects/88124962
34. https://scratch.mit.edu/projects/88132198
35. https://scratch.mit.edu/projects/88133438
36. https://scratch.mit.edu/projects/88214225
37. https://scratch.mit.edu/projects/88214315
38. https://scratch.mit.edu/projects/88214885
39. https://scratch.mit.edu/projects/88222337
40. https://scratch.mit.edu/projects/88222344
41. https://scratch.mit.edu/projects/88223773
42. https://scratch.mit.edu/projects/88225627
43. https://scratch.mit.edu/projects/88225812
44. https://scratch.mit.edu/projects/88226081
45. https://scratch.mit.edu/projects/88264161
46. https://scratch.mit.edu/projects/88281683
47. https://scratch.mit.edu/projects/88293583

48. https://scratch.mit.edu/projects/88298269
49. https://scratch.mit.edu/projects/88301574
50. https://scratch.mit.edu/projects/88320199
51. https://scratch.mit.edu/projects/88376837
52. https://scratch.mit.edu/projects/88388440
53. https://scratch.mit.edu/projects/88464383

2 Groups of experts

Table 1 shows the organization/company and years of experience with Scratch of each of the 16 experts who participated in the investigation.

Table 1: Affiliation information and years of experience with Scratch of the experts who participated as jury

Affiliation	**Experience**
Ágora International	2 years
Código Octopus	2 years
Education department, Catalunya	6 years
Escola Projecte	8 years
Lope de Vega School	2 years
Miguel de Cervantes School	7 years
Olivar de Quinto School	4 years
Pixie Code	2 years
Polgono Sur High school	6 years
Programamos	2 years
Sagrado Corazón School	2 years
San Juan Bosco High school	3 years
SESA, Sistemas Electrónicos	4 years
Universidad de Alicante	1 year
Universitat de Girona	6 years
Vicente Aleixandre High school	4 years

Table 2 shows the years of experience of the experts in each of the groups, as well as the mean experience of the groups, which ranges between 3.5 and 4 years for all of them.

3 Instructions for experts

This section presents the communications (translated into English) that were sent to experts with the instructions for the assessments during each week.

Table 2: Years of experience of the experts in each of the groups

	Group 1	Group 2	Group 3	Group 4
	8	6	6	7
	3	4	4	6
	2	4	2	2
	2	2	2	1
Mean	3.75	4	3.5	4

3.1 Week 1

In this link you can access a form with the evaluation template that we ask you to follow this first week: [...]

You will have to fill out the form and submit it as many times as projects you evaluate. The list of projects that we ask you to assess this week is the following:

[....]

Although the rules of the competition state that the theme of the projects must be related to science, please do not take this issue into consideration for the evaluation of projects. We will later establish a filter in this sense, but we do not want it to influence your evaluations.

As you will see, this week's template is totally open, limiting us to ask for a global project score based on criteria that you, as experts, deem appropriate. Nonetheless we ask you to justify the score by explaining in the comments the criteria you chose.

3.2 Week 2

We write you with the new batch of projects of the programming contest with Scratch. If you have not yet evaluated the projects for week 1, please do not start with week 2 until week 1 is over.

In this link you can access a form with the evaluation template that we ask you to follow in this second week: [...]

You will have to fill out and send the form as many times as projects you evaluate. The list of projects that we ask you to evaluate this week is the following:

[...]

4 Templates for the assessment

The experts provided their assessments using Google Forms. The fields of the forms for each of the weeks are as follows:

4.1 Week 1

- URL of the project
- Global score of the project
- Justification for the assigned score

4.2 Week 2

- URL of the project
- Score in terms of creativity and originality
- (Non mandatory) comments on this aspect
- Score in terms of technical complexity
- (Non mandatory) comments on this aspect
- Score in terms of aesthetics and sensorial effects
- (Non mandatory) comments on this aspect
- Global score of the project