HELMeTO 2022

4th International Conference on
Higher Education Learning Methodologies and Technologies Online
HELMeTO2022

September 21-23, 2022
Palermo, Italy

Book of Abstracts

Sponsored by

National Research Council of Italy
Institute for Educational Technologies

Università degli Studi di Palermo

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Training teachers' digital skills after pandemic. A start-up study on 'Didactic technologies' laboratory at UniBg

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1 Initial training of primary school teachers and digital skills

Comparative research on initial teacher training (1) confirmed a trend towards 'simultaneous' models, experience-based training activities, the flexible offer, also thanks to digital support. Like any other professional higher education course. In Italy, the 'Primary Education Sciences' master degree qualifies future teachers of kindergarten and primary school through a close integration between university and school environment (2) and experimental organizational solutions that integrate lectures, internships and laboratories, also for what concerns the strength of teachers' digital skills (3). The pandemic emergency has forced to find new solutions to carry out experience-based training activities in order to guarantee the expected outgoing skills, through online or hybrid methods (4) (5). Many investigations highlighted the effect of pandemic on higher education, among other things, the re-think the technological and digital skills of trainee teachers (6), as well as the positive feedback from students regarding virtual or hybrid laboratories (7) (8).

2 Context, objectives and methodology of the study

At the 'Didactic technologies' laboratory (3 CFU), held in the fourth year of the master degree 'Primary Education Sciences' at the University of Bergamo, students are asked to produce a digital storytelling (DTS) of about 5 minutes. Students must undertake a path structured in three macro-phases to produce three outputs (description of the project, script and storyboard, final digital story), and for each of the three phases they must evaluate the products of three colleagues, in a peer-evaluation process aimed at stimulating the students' creativity and the quality of their products (9) (10).
In 2021/22 years, a study has been started with the aim of (a.) knowing the perception of students regarding the 'Didactic technologies' laboratory experience; (b.) verify if the modality of participation in the laboratory - in-person/remotely - influenced the students' perception of the laboratory. An online 'ad hoc' questionnaire was administered to all attended students (n. tot. 150) - 102 students answered the questionnaire (68%) - at the end of the laboratory activities.
The statistical analysis of the data matrix was made on three levels: a. description of the student population involved – average age of 21-30 (75.49%); 0-1 years of service (50.98%); in remotely attendance (86.27%); b. description of the answers to questions

nos. 5-7 (see Table 1); c. study of the relationship between 'in person or remotely attendance' and the answers to the questions nn. 5-7 (see Table 2).

Table 1. Answers to questions nn. 5-7

Questions	N. (Tot. 102)	%
Characterizing didactic methods (n.5)		
content delivery	6	5,88%
alternation 'content-delivery' exercises	92	90,20%
exercises	4	3,92%
Most connection with (n.6)		
lecture	16	15,69%
other laboratories	18	17,65%
internship	68	66,67%
Strength of personal digital skills (n.7)		
not at all	0	0,00%
little	8	7,84%
quite	34	33,33%
very	49	48,04%
fully	11	10,78%

3. Early findings and some considerations

Table 2. Answers to questions nn. 5-7. Difference remotely- and in person-attended students

Questions	In-person, n. and % (Tot. 14)	Remotely, n. and % (Tot. 88)
Characterizing didactic methods (n.5)		
content delivery	0 (0,00%)	6 (6,82%)
altern. 'content-delivery' exercises	13 (92,86%)	79 (89,77%)
exercises	1 (7,14%)	3 (3,41%)
Most connection with (n.6)		
lecture	1 (7,14%)	15 (17,05%)
other laboratories	3 (21,43%)	15 (17,05%)
internship	10 (71,43%)	58 (65,91%)
Strength of personal digital skills (n.7)		
not at all	0 (0,00%)	0 (0,00%)
little	0 (0,00%)	8 (9,09%)
quite	3 (21,43%)	31 (35,23%)
very	9 (64,29%)	40 (45,45%)
fully	2 (14,29%)	9 (10,23%)

The descriptive statistical analysis allows at the moment to infer a difference between in person-attended and remotely-attended students, regarding:

- the characterizing didactic methods - in person-attended students most sensitive to alternation 'content-delivery' exercises; remotely-attended students most sensitive to 'content delivery';
- specifically, the connection of the didactic technology laboratory with other training activities - remotely-attended students most capable of grasping the connections with lectures and other laboratories.

In the full paper, data will be integrated with the analysis of statistical significance ($p<0.05$) and with the statistical regression between in person-attended and remotely-attended students.

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