Enhancing Readiness for Virtual and Blended International Collaboration in Higher Education: Insights from an Online Training Module

Alice Barana[1] , **Vasiliki Eirini Chatzea[2]** , **Kelly Henao[3]** , **Ania Maria Hildebrandt[4]**, **Marina Marchisio Conte[1]** , **Daniel Samoilovich[3], Georgios Triantafyllidis[4]** , **Nikolas Vidakis[2]**

[1]Department of Molecular Biotechnology and Health Sciences, University of Turin, Italy, [2]Department of Electrical & Computer Engineering, Hellenic Mediterranean University, Greece, [3]Columbus Association, France, [4]Department of Architecture, Design and Media Technology, Aalborg University, Denmark.

Abstract

International collaboration activities in virtual or blended modalities are becoming increasingly common, enhancing the internationalisation of higher education institutions in teaching and learning. This is crucial for equipping students with intercultural competencies and fostering open-mindedness. One key strategy to promote such activities is faculty and staff training. This study examines the outcomes of an online training module involving higher education teachers and administrative/technical staff. The course positively influenced participants' perception of international collaboration, especially for the group with a less initially positive perception of similar activities. Moreover, it improved the participants' readiness to engage in these activities by contributing to developing their teaching strategies. The findings highlight the role of professional development in fostering international collaboration in education and suggest that targeted training can support higher education institutions in integrating virtual and blended collaboration more effectively.

Keywords: Blended learning; International collaboration; Online learning; Teacher training; Professional development; Teacher readiness.

1. Introduction

In today's interconnected world, the ability to work collaboratively across cultures, embrace diverse perspectives, and demonstrate flexibility is not just a valuable skill—it is essential.

Higher Education (HE) institutions are key in equipping students with these competencies (Mananay et al., 2024). International activities are powerful tools for fostering intercultural understanding, teamwork, and open-mindedness, helping students thrive in an increasingly globalised society (Liang & Schartner, 2022). Traditionally, internationalisation in HE has relied heavily on physical mobility programmes, where students spend extended periods abroad. While this remains important, we are witnessing the emergence of innovative approaches to international collaboration in virtual or blended modalities, such as Blended Intensive Programs (BIPs) (European Commission, 2022; Barana et al., 2024) and Collaborative Online International Learning (COIL) (Hackett et al., 2024). These models enable more inclusive and flexible participation, reaching students who may not have the means or opportunity to engage in traditional mobility (Barana & Marchisio Conte, 2024). Very often, similar activities rely on the HE teachers' initiative and are based on their research collaborations (Kučerová, 2023; Perfölz & López-Varela, 2022). One of the ways to enhance the HE institutions' capability to implement virtual or blended international collaboration activities is by promoting faculty and staff training programmes that enable faculty and staff's readiness to organise and support similar activities (Mananay et al., 2024). According to Mananay et al. (2024), readiness, in this context, refers to how well-equipped stakeholders are regarding the abilities, attitudes, and knowledge needed to participate in internationalisation projects. It is influenced by cultural competence, language proficiency, pedagogical strategies, professional development, attitudes and beliefs, and experience in internationalisation. According to Nyagau (2019), to enable teachers to organise international teaching and learning activities, they should have strong leadership skills, good interpersonal and communication skills, organisational knowledge and problem-solving skills, open-mindedness, empathy, and the ability to tolerate ambiguity. While HE teachers generally have a highly positive perception of internationalisation (Mananay et al., 2024), the main barriers they face are the lack of recognition and institutional support for this work (Nyangau, 2019).

The INVITE Erasmus+ Project aims to develop teaching and learning competencies for designing and implementing new virtual and blended modalities of international collaboration in HE institutions. The INVITE consortium, composed of Aalborg University (Denmark), Columbus Association (France), Hellenic Mediterranean University (Greece), and University of Turin (Italy), organised an online training module for teachers and institutional staff to prepare them to design, implement, and support the realisation of activities such as COILs and BIPs. This paper aims to understand if this training module effectively improved faculty and staff's perceptions of these new modalities of international collaboration and their readiness, knowledge, and skills to promote their development.

2. The INVITE training module

The training module organised within the INVITE project was open to HE teachers and administrative/technical staff to promote mutual collaboration in implementing virtual or blended international collaboration activities. The module was asynchronous, self-paced, and fully online to maximise participation possibilities. It was open from April to October 2024, with an estimated training time of approximately 6 hours. Following the ADDIE model of instructional design (Peterson, 2003), it interactively showed participants how to create a COIL, BIP, or similar activity, guiding them step-by-step. Contents and activities focused on: how to conceive an idea for an international collaboration, finding partners and funding; define the international added value of the activities and suitable learning outcomes based on the students' composition; design the activities incorporating active learning strategies and digital technologies; develop culturally sensitive and culturally relevant contents, also using available open educational resources; encourage peer interaction and intercultural discussion; evaluate the achievement of international goals and learning outcomes, by providing feedback to improve. In a modular structure, participants could explore videos and resources, engage in quizzes, reflect with questionnaires, discuss with forums, and develop their activities by submitting the tasks. Participants could work collaboratively on tasks, even if mainly conceived to put into practice the learning contents. More details about the structure of the training module are available in (Barana et al., 2025).

3. Research method

This paper aims to answer three research questions (RQs). RQ1: How did the training module impact the participants' perceptions of virtual and blended international collaboration activities? RQ2: How did the training module impact the participants' readiness to organise or support a similar activity? RQ3: Which skill area did the training module significantly impact the most?

To address these RQs, the answers to the initial (IQ) and final (FQ) surveys of the participants who completed the training module were collected and analysed. The sample consists of 150 answers from the participants who completed the module and accepted that their data were used for research purposes. 118 were provided by participants who followed the path for teachers and 42 by those who followed the path for staff. Table 1 lists all the items that were considered for this study. Answers were in Likert-scale form 1 (lower agreement value) to 5 (higher agreement value).

Items Q01a-f were used to evaluate the impact of the training module on perceptions of international collaboration activities (RQ1). Besides descriptive statistics on single items, we computed the Wilcoxon signed-rank test to evaluate differences between final and initial answers. Then, for each participant, we computed the mean of the answers to the six items to have an index of perception and the mean difference between the final and initial questionnaires

to have an index of improvement in perception. We compared the improvement in perception between those with an initial low perception (25th percentile) and the others.

Q1g was used to evaluate readiness for virtual or blended international collaboration (RQ2). We compared the initial and final values through the Wilcoxon signed-rank test. Moreover, we computed the Pearson's coefficient between answers to Q01g and Q01h in the final questionnaire to understand how much the training module impacted the participants' readiness. Cronbach Alpha was computed on items Q01a-h to measure the questionnaire reliability.

Question Q2 was used to address RQ3 and identify the skill areas on which the training module had the highest impact. In particular, we focused on Digital and IT skills (Q02b), pedagogical skills (Q02c-d), intercultural skills (Q02a, Q02e, Q02h), team and collaborative work (Q02f), attitude to professional development (Q02g), communication skills (Q02i-j), creativity (Q02k). Items Q2a-k were analysed through descriptive statistics.

Table 1. 5-point Likert-scale items from the initial and final survey used for this study.

Item	Text	Survey
Q01	Thinking about international collaboration activities such as COIL or BIPs, to what extent do you agree to the following sentences?	
Q01a	They are valuable experiences for students.	IQ, FQ
Q01b	They are valuable experiences for teachers.	IQ, FQ
Q01c	They can bring added value to HE institutions.	IQ, FQ
Q01d	I would like to participate in a similar experience as a teacher.	IQ, FQ
Q01e	I find it feasible to organise similar experiences in my institution.	IQ, FQ
Q01f	My institution supports the realisation of international collaboration activities.	IQ, FQ
Q01g	I feel ready to carry out/support the realisation of a similar activity.	IQ, FQ
Q01h	This module gave me useful knowledge and instruments to carry out/support the realisation of a similar activity.	FQ
Q02	To what extent did you improve the following skills during this experience?	
Q02a	Empathy	FQ
Q02b	Digital and IT skills	FQ
Q02c	New teaching approaches	FQ
Q02d	Learning design	FQ
Q02e	Tolerance and respect for others	FQ
Q02f	Team and collaborative work	FQ
Q02g	Learning-how-to-learn	FQ
Q02h	Flexibility and Adaptation to different contexts and situations	FQ
Q02i	Communication in formal settings	FQ
Q02j	Communication in social settings	FQ
Q02k	Creativity	FQ

4. Results and discussion

As a first step, the Cronbach Alpha was computed on items Q01a-h, considering both the initial and final questionnaires, as indicator of questionnaire reliability. The result, 0.891, indicates a high level of internal consistency.

We start focusing on RQ1, that is, the effect of the training module on the perception of virtual or blended international collaboration. Since the answers to items Q01a-f were not normally distributed, we used the Wilcoxon signed-rank test to compare the initial and final values item by item. Results are shown in Table 2. The results show very positive levels of perception about virtual or blended international collaboration, both at the beginning and at the end of the module. This result is in line with those found by Mananay et al. (2024). Answers to the single items about perception are not significantly modified after the course; we hypothesise that this is due to a ceiling effect: since most of the values are at their maximum at the beginning of the course, it is difficult to measure an improvement. Therefore, for each participant, we computed the mean value of items Q01a-f at the beginning and end of the course and their difference. We divided the participants into two groups based on their initial perception level. Since the median value is high (4.7/5), the lower perception group includes those below the first quartile (corresponding to 4.2), while the higher perception group includes all the others. We compared the improvement in perception across these two groups. We found that the perception of the initial lower group improved by 0.40 points out of 5, while the perception of the higher group remained approximately stable (-0.08 points out of 5). The difference is statistically significant to the ANOVA test (F=25.38, p<0.001): even if the participants' initial perception of international collaboration is relatively high and remains stable, the training module improved the perception in those who, at the beginning of the course, had a lower perception.

Table 2. Results of the Wilcoxon signed-rank test on items about perception of virtual or blended international collaborative activities in HE.

Item	Mean IQ	St. Dev. IQ	Mean FQ	St. Dev. FQ	Z	p-value
Q01a	4.67	0.565	4.75	0.464	-1.479	0.139
Q01b	4.63	0.645	4.70	0.516	-1.104	0.270
Q01c	4.61	0.591	4.64	0.585	0.000	1.000
Q01d	4.51	0.658	4.61	0.541	-1.725	0.084
Q01e	4.17	0.790	4.30	0.816	-1.721	0.085
Q01f	4.37	0.755	4.37	0.750	-0.023	0.982

We now focus on participants' readiness to carry out or support these activities (RQ2). Item Q01g was analysed through the Wilcoxon signed-rank test, similar to what was done for items Q01a-f, and a significant difference in the participants' answers was found (see Table 3). The initial value of the participants' readiness to carry out or support activities such as BIPs or COILs is lower than the initial values about the perception of the same activities. If, before attending

the course, HE teachers and staff were aware of the benefits that international collaboration activities can bring to their institution and work, they did not feel equally ready to realise them before attending the course. However, after attending the training module, their responses significantly increased: we can assume that it positively affected their readiness. To verify this assumption, we cross-checked the answers to items Q01g and Q01h in the final questionnaire. In particular, we computed the Pearson's coefficient to verify if there is a correlation between the answers to the two items. The Pearson's coefficient is 0.47 (p<0.001), indicating a good level of correlation between the two variables: those who, at the end of the module, feel ready to carry out or support a BIP or a COIL also affirm that the training module provided them with valuable instruments to realise a similar activity. We also note that the answers to Q01h are generally high, having a mean near 4.5 out of 5: the training module was generally appreciated for its effectiveness in helping teachers and staff implement international collaboration activities in virtual or blended modalities. We also checked through ANOVA if there is any difference in the answers to Q01h between the teachers and staff groups, and we did not find any significant differences (teachers: mean=4.49, staff: mean=4.36. F=1.317, p=0.253). These results show that the paths were considered equally effective.

Table 3. Statistics of items Q01g-h and results of the Wilcoxon signed-rank test on Q01g.

Item	Mean IQ	St. Dev. IQ	Mean FQ	St. Dev. FQ	Z	p-value
Q01g	3.92	0.997	4.19	0.799	-3.072	0.002
Q01h			4.45	0.641		

Lastly, we focus on the skills provided by the training module according to the participants (RQ3). We computed descriptive statistics on the items of Q02. Results are shown in Table 4. The skills on which the training module has the primary effect, according to the participants, are pedagogical skills (Q02c and Q02d), followed by the attitude to professional development (Q02g) and creativity (Q02k). The least impacted skills are empathy (Q02a), digital and IT skills (Q02b), team and collaborative work (Q02f) and communication in formal settings (Q02i). New teaching approaches and learning design are the primary learning outcomes of the training module, so the participants' answers testify that the course activities were in line with its objectives. Participants had the opportunity to practice learning how to learn and be creative by exploring the resources and completing the tasks that asked them to design a virtual or blended international activity. On the other hand, the training module offered participants a limited occasion to develop digital and IT skills and communication in formal settings since they only had to describe the design of an activity in a written form and not implement it or present it in front of the public or necessarily communicate with peers to design the activity. Similarly, collaboration was encouraged but not mandatory, and many participants preferred to complete the tasks individually, as observed in (Barana et al., 2025). Thus, they had little opportunity to improve their empathy and teamwork skills within the course.

Table 4. Statistics of items Q01g-h and results of the Wilcoxon signed-rank test on Q01g.

Item	Mean	St. Dev.	Percentage of 1	Percentage of 2	Percentage of 3	Percentage of 4	Percentage of 5
Q02a	3.40	1.24	11%	10%	32%	24%	23%
Q02b	3.52	1.18	8%	8%	29%	31%	23%
Q02c	4.36	0.69	0%	1%	10%	42%	48%
Q02d	4.43	0.72	0%	1%	11%	32%	55%
Q02e	3.68	1.19	8%	8%	22%	33%	29%
Q02f	3.56	1.18	7%	9%	29%	29%	25%
Q02g	4.06	0.90	0%	7%	17%	39%	37%
Q02h	3.97	0.98	2%	5%	21%	37%	35%
Q02i	3.58	1.11	9%	4%	27%	41%	19%
Q02j	3.60	1.12	8%	4%	30%	36%	22%
Q02k	4.01	0.86	1%	3%	22%	41%	32%

5. Conclusion

This study examines the effectiveness of an online training module for HE teachers and staff in enhancing their perceptions, readiness, and skills to implement virtual or blended international collaboration activities. The analysis of initial and final questionnaires confirms the findings of Mananay et al. (2024), which indicate that HE teachers generally have a very positive perception of international teaching and learning activities. Furthermore, participants who initially had a lower perception showed a significant improvement. The module significantly enhanced participants' readiness to adopt these approaches, particularly by strengthening their teaching and learning skills, professional development mindset, and creativity. Discussions with some participants revealed that several implemented BIP or COIL after completing the course. To further assess the module's impact, a follow-up survey was launched to gather additional feedback on how effectively the course supported them in implementing these activities. The main limitations of this study are the small sample size and the self-assessment nature of the data collected. However, the project consortium is working on revising the module to launch it as an open online course. This will enable a larger participant base, allowing for a more robust validation of these preliminary results. Such a course can help HE institutions foster international collaborations and develop the necessary skills to activate these initiatives. By equipping educators with the right tools, this type of training can expand international learning opportunities and strengthen institutions' capacity to offer a more globally connected curriculum. As shown in the findings, teachers' training helps to increase the awareness and value of international activities in teaching practice. It especially equips those who are already aware with skills to shift towards designing a concrete activity, such as BIP or COIL. Those skills are mainly related to the design of new teaching approaches, the attitude towards professional development and creativity. Other least-developed teacher skills, such as digital and IT skills, team and collaborative work, and communication in formal settings, might suggest the need for adapting teacher training environments with a more collaborative approach, where teachers can experiment with international peers in the co-design of their activities.

Acknowledgements

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