Anno 7, 2/2022

Excellence and Innovation in Learning and Teaching
Research and Practices

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FrancoAngeli
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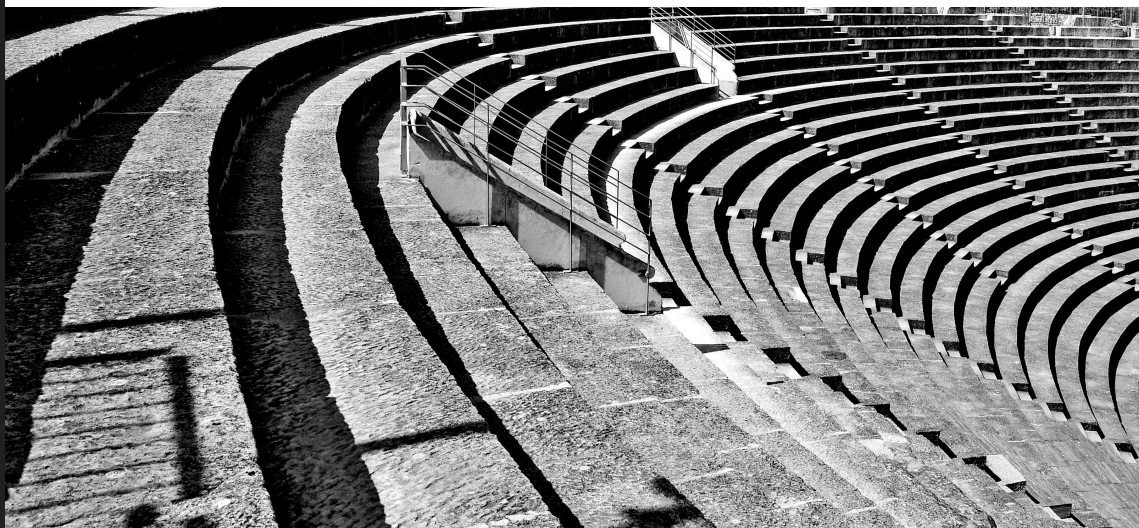

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Saggi e ricerche

Digital Media in Adult and Continuing Education in Germany

Lisa Breitschwerdt, Vanessa Beu, Regina Egetenmeyer, Silke Grafe[*]

Abstract
Digital media are important elements in the didactic planning and design of provisions and programmes in adult and continuing education. Based on questionnaire and interview data from organizations and umbrella organizations active in adult and continuing education in Germany, the article examines how adult educators use digital media and what reasons they give for using them. The article distinguishes between types of digital media, digital tools, and didactically structured digital media offerings. The analysis shows that educators use digital media in settings combining micro- and macrodidactics. Overall, didactic considerations are shifting more to the macrodidactic planning level, emphasizing the role of organizations and umbrella organizations. This is accompanied by changing demands on cooperation between planning staff and instructors. Moreover, the roles of staff expand and diversify with the use of digital media.

Keywords*:* Digital media, adult and continuing education, digitalization, media education, digital tools.

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Introduction

Digitalization and mediatization processes in society (Krotz, 2007) raise questions about how digital media may be used in the design of teaching-learning processes in adult and continuing education. The rapid pace at which digital media continue to evolve and become more widely available creates ever new possibilities of using these media in both formal teaching-learning settings and informal learning contexts. The use of media changes the nature of teaching-learning settings in adult and continuing education organizations (Christ et al., 2020, p. 20), calling for modified approaches in teaching methodology and for adult education concepts taking account of the special qualities of digital media (Egetenmeyer et al., 2021).

For decades – and under different names (especially "new media") – the use of digital media has been a widely discussed issue in adult and continuing education (e.g., Baacke et al., 1990; Stang, 2001), including both theoretical discourse and empirical studies (e.g., Hippel, 2007). Recent studies focus on use-related issues and on how adult and continuing education staff rate the effectiveness of digital media in formal teaching-learning settings (e.g., Schmid et al., 2017; Sgier et al., 2018). What is missing in this research is a specific analysis of the reasons that make adult educators want to use digital media in formal teaching-learning settings. At the same time, adult and continuing education research faces the challenge of keeping pace with the rapid developments in digital media and their potential applications in practice – driven, most importantly, by the impact of the Covid-19 pandemic. Particularly after the first lockdown during the Covid-19 pandemic, continuing education programmes in Germany were converted into purely online formats (Christ et al., 2021, 24f.). In these settings, the use of digital media can be assumed to have increased substantially since the summer of 2020.

In this article it is examined what types of digital media are used by staff in adult teaching-learning settings in Germany and what reasons are given for using them. For this purpose, the article starts with a definition following Tulodziecki et al.'s (2021) threefold distinction of digital media (Section 2). The research project "Digitalisation in Adult and Continuing Professional Education" (DigiEB, 2019-2022)[1] has collected questionnaire and interview data on digitalization at adult and continuing education organizations in Germany in two survey rounds (Section 3). Following the above typology and applying the approach of triangulation, data on adult educators' media use is examined, their assessment of the effectiveness of that use, and their underlying didactic reasoning (Section 4). In the final section, the results of the empirical

[1] More information on this project is available online: go.uniwue.de/digieb.

analyses, connect them to current discourse, and identify points of departure for further research are discussed (Section 5).

"Digital Media" in the context of adult and continuing education

Media are intermediaries "through which potential signs are recorded or produced and processed, transmitted, stored or reproduced or presented and made available in communicative contexts with technical support" (Tulodziecki et al., 2021, p. 33). They exert an influence on individuals and society and must be seen in the "context of the technical, legal, economic, personal, institutional, political and other social-cultural conditions of their production and dissemination" (Tulodziecki et al., 2021, p. 33). Digital media are defined as those media that are based on information and communication technologies. In adult education discourse, they are also called "new media" (e.g., Stang, 2001).

Considering the role of new media in teaching and learning from an empirical perspective, studies trying to demonstrate general effects of digital media often neglect specific characteristics of digital media, the learning process, or other dependent variables (Tulodziecki et al., 2021, p. 33). Accordingly, these studies are of limited value for didactic decisions (ibid). In contrast, evaluation studies, which consider the specific circumstances of the teaching and learning process, show that using digital media can lead to higher motivation and increased cooperation, to self-directed learning or to an advancement of cognitive skills (for an overview, see Herzig, 2014).

The use of digital media in adult and continuing education programmes and offerings must be understood as a didactic issue (Hippel & Freide, 2018, pp. 974-976), which is often raised in connection with teaching methodology (e.g. Weidenmann, 2011). The terms didactic or didactics are frequently used in the German discourse when it comes to the design of learning opportunities. Didactics refers to the considerations, actions and reflections to support learning processes in the best possible way (Hippel et al., 2018). Within didactics, it can be distinguished between microdidactic considerations of media use in the immediate teaching and learning interactions (e.g., Hippel et al., 2018) and macrodidactic perspectives in programme planning (e.g., Fleige et al., 2018). Microdidactics focuses the concrete interactions between teachers and learners. Macrodidactics addresses the design of an organisation's total educational offerings with regard to the organisation's objectives.

Following the typology provided by Tulodziecki et al. (2021), digital media can be distinguished between digital media types, digital tools, and didactically structured digital media offerings. This approach is helpful when analysing

digital media usage with regard to the different didactic levels (see also Grotlüschen, 2018; Koppel, 2021).

Digital media types refer to media as a whole (Tulodziecki et al., 2021), such as computers/laptops or TV sets. Media type thus also includes the hardware used. Aside from computers/laptops and projectors, relevant digital media in adult education settings may include interactive whiteboards, document cameras/visualizers, digital cameras, and, if applicable, screens with smart TV functionalities or mobile devices such as smartphones or tablets. Thus, digital media types are linked to questions of adult education spaces (e.g. Stang et al., 2018) and the equipment installed.

Examples of digital tools include standard software (e.g., presentation software), programming environments, mind mapping or knowledge management tools, and learning and content management systems. Tulodziecki et al. (2021) compare these to analogue tools such as blackboards, flipchart stands, or moderation walls; because the applications are immediately available and are used to prepare content for teaching and learning settings.

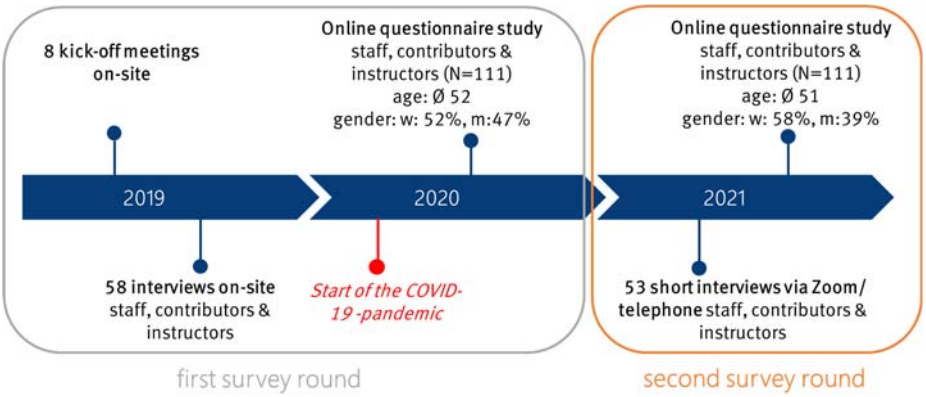
Didactically structured digital media offerings have in common that they offer content in a (didactically) structured manner. Tulodziecki et al. (2021) distinguish between teaching programmes, open teaching systems or explorative learning environments, practice programmes, digital textbooks, experimentation and simulation environments, augmented or virtual reality applications (AR, VR), intelligent tutoring systems (ITS), learning games, and videos. This changes the role of instructors (e.g., Schüepp, 2018; Sgier et al., 2018) because the content has already been fully or partially pre-structured for didactic purposes.

Methods

The study presented here is based on data from the research project "Digitalisation in Adult and Continuing Professional Education" (DigiEB). It analyses data from six adult and continuing education organizations and from two associated umbrella organizations in different regions of Germany. The sample includes municipal organizations, denominational organizations, and non-company-based training organizations experienced in using digital media. Data collection in the organizations was divided into a first and a second survey round (see Fig. 1). The aim was to observe how digitalization evolves in the facilities[2].

[2] For an insight into the overall conception of the research project as well as into the data collected see Egetenmeyer et al. (in process).

Figure 1- Methodology



To analyse digital media usage in adult and continuing education, the study draws on questionnaire data from an online survey of the organizations' staff from both survey rounds. For this article, 111 data sets (survey period: September to November 2020) and 424 data sets (survey period: September to November 2021) are analysed on four items[3]. From the more extensive questionnaire, those items are selected that provide information on respondents' media use. The sample size provides initial insight into the situation at the organizations surveyed, but it is not a representative sample. Participants in both the questionnaire study and the interview study can be assumed to be drawn towards digital media. For this article, the following presented items on digital media use are analysed descriptively and statistically (Rasch et al., 2014).

The questionnaire data concerning respondents' reasons for using digital media are supplemented by an analysis of qualitative data from eight kick-off interviews (survey period: March to August 2019) and 58 expert interviews with organizational staff (survey period: September 2019 to February 2020). The second survey round involved 53 short interviews (survey period: March to June 2021).

With regard to profession, the sample includes lecturers (survey period one: 20; survey period two: 17), who often work as freelancers for various organisations, and the organisations' permanent staff (survey period one: 37; survey period two: 38), who are usually more responsible for organisational

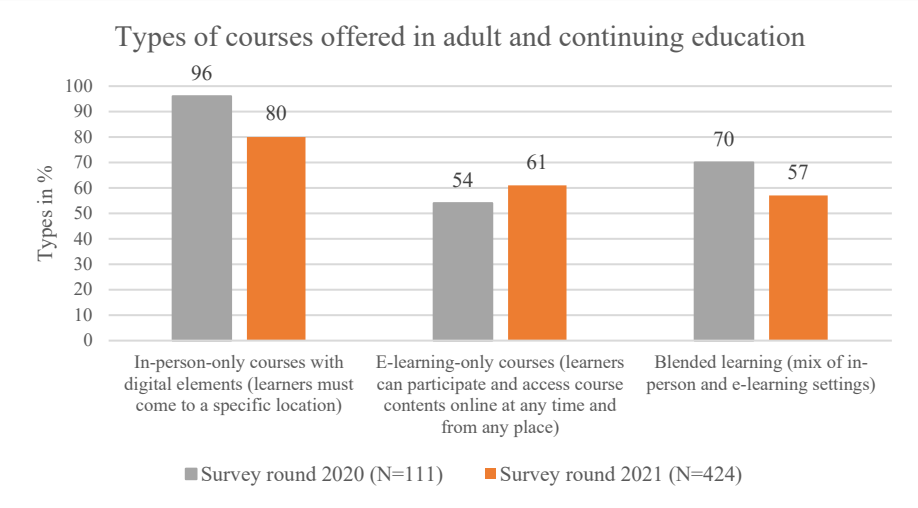
[3] Over the course of the two survey rounds, the qualitative and quantitative survey of instructors, staff, and contributors generated a comprehensive data set. For this article, we analysed 535 data sets. Further information on the total sample can be found in the data manual planned for publication.

and planning tasks. The qualitative data were transcribed and anonymized (Dresing & Pehl, 2018; Meyermann & Porzelt, 2014). The analysis is based on a qualitative content analysis and a deductive-inductive approach following explicit rules of coding (Mayring, 2015; Kuckartz, 2016)[4]. Applying a mixed methods design (Creswell et al., 2003), first the digital media categories in the questionnaire were used (e.g., "videos") to analyse the interview data. In a second step, inductive categories on digital media use from the material were developed. For this purpose, the text passages on digital media use that were assigned to the deductive categories and analysed the reasons given by the staff for using them were revisited.

Digital media usage in adult and continuing education

In the questionnaire survey, 93% of continuing education staff in 2020 and 92% in 2021 report using digital media in their courses. The same applies to the results on the types of courses offered (Fig. 2).

Figure 2- Types of courses offered in adult and continuing education (multiple answers possible)



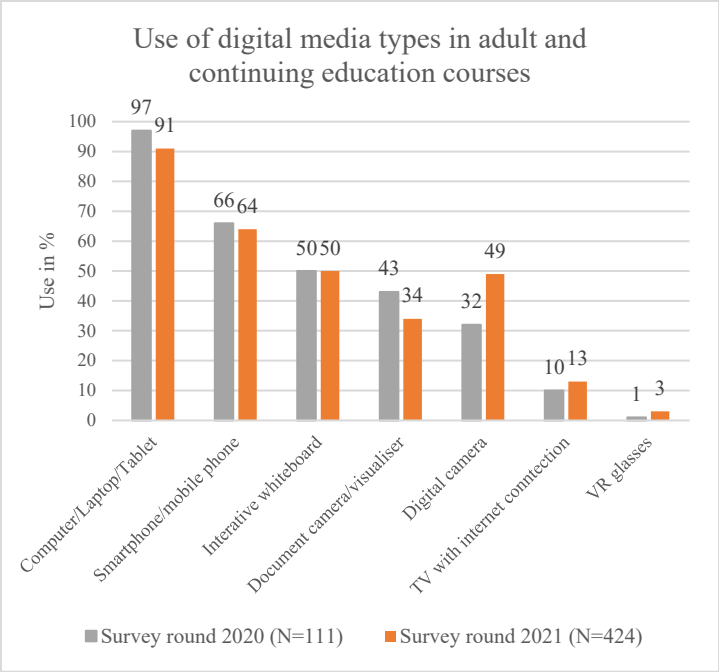
[4] The project's research design is based on a dialogical approach (Gómez et al., 2011; Tulodziecki et al., 2014) which aims to achieve a beneficial interconnection of perspectives from research and practice and to facilitate an in-depth understanding of the research object on all sides.

In 2020, 96% of respondents report offering face-to-face courses as well, suggesting that responses also reflect teaching activities prior to the Covid-19 pandemic. The 2021 results, which are significantly lower (80%), suggest that the restrictions associated with the Covid-19 pandemic led to a drop in face-to-face teaching. For example, the share of online-only courses increased from 2020 (54%) to 2021 (61%). Blended learning formats, by contrast, were used less frequently in 2021 (57%) than in 2020 (70%). This might have to do with the increase of online-only courses during the Covid-19 pandemic, which led to a decline in blended learning courses.

Digital media types

At both survey times, the data reveal that the respondents used a wide range of digital media types. At the same time, clear preferences for some digital media types emerge (Fig. 3).

Figure 3 - Use of digital media types in adult and continuing education courses (multiple answers possible)



The most frequently used digital media type by far is computers/ laptops/ tablets (2020: 97%; 2021: 91%) and projectors. About two-thirds of respondents use smartphones or mobile phones (2020: 66%; 2021: 64%) in their courses. The high scores in these two categories indicate that familiarity with digital media types in the private sphere is reflected in their professional use. However, there are also some striking changes in the use of digital media types between the two survey rounds. The significant decline in the use of document cameras/visualizers (2020: 43%; 2021: 34%) could be due to a growing shift to online-only settings. Whereas in 2020, the use of digital media types seemed to depend fundamentally on the equipment available on the premises ("depending on what's in the classroom"; G_I5: 8)[5] , on-site technical equipment plays a lesser role in the online-only settings overrepresented in 2021. The issue of equipment rather shifts to the equipment of the digital meeting room. This may also help explain the sharp increase in the use of digital cameras (2020: 32%; 2021: 49%). It is reasonable to assume that digital cameras – both those integrated in mobile devices and those attached externally – were now part of the necessary basic equipment to participate in online settings. Related to this is a growing awareness among continuing education staff of the range of digital media types available and thoughts on how to use them appropriately in teaching settings. Equipping rooms with digital media is not only an issue at organizations but also at the individual level as instructors think about professionalizing their media equipment at home: "Yes, well, I'm also upgrading here. I bought a tablet, and a pen, and some graphic thingy, one after another." (G_I5a: 12).

In addition to equipping rooms with digital media, the organizations face the challenge of training and supporting their staff in using them: "Because if this is supposed to work really well, you also have to train the trainers." (H_I7a: 9).

Digital tools

At both survey times, more than half of respondents used digital tools (Tab. 1). When asked to rate the effectiveness of these digital tools, respondents tended to give high ratings at both dates. Whereas in 2020 the high standard deviations point to a large variance in ratings, in 2021 staff seem to be able to rate the effectiveness of digital tools in a somewhat more focused way across the board.

[5] The same persons were interviewed in both survey rounds. The first letter (A–H) denotes the organization. The combination of "I" and a number is used to identify the person interviewed at that organization (e.g., "I7"). The lower-case letter "a" marks the second interview date.

Table 1- Digital tools: Usage figures and effectiveness ratings

Digital tools	Use in %		Effectiveness ratings (1=not effective at all to 5 = highly effective)			
	Survey round 2020	Survey round 2021	Survey round 2020		Survey round 2021	
	N = 111	N = 424	N = 111		N = 424	
			M	SD	M	SD
Application software[6]	86	76	4,43	1,1	4,37	0,9
Video conferencing applications	86	83	4,18	1,1	4,32	0,9
Learning and content management systems (LMS/CMS)	82	69	3,88	1,2	4,05	0,9
Online survey	66	63	3,58	1,4	3,86	1,0
Chat programmes	55	51	3,69	1,4	3,64	1,1
Cloud services	49	50	3,69	1,5	3,74	1,1

Interestingly, comparing the 2020 and 2021 figures reveals a striking 10% decrease in the use of application software although the effectiveness rating remains constant (2020: M = 4.43; 2021: M = 4.37). Whereas interviewees in the first survey mainly refer to presentation software as a basic digital tool ("we simply use PowerPoint"; B_I6: 28), the primary focus on application software seems to decrease somewhat at the second survey time. Application software does not become obsolete, but rather than being the main tool it is now one option for designing teaching-learning settings alongside a variety of other digital tools: "[...] now there is Zoom. But the way it is now, you need additional tools for it. It's not enough to have PowerPoint, I also need a tool for collaboration. I don't know, Padlet, or something else." (H_I3a_DO: 55)

The high usage scores and effectiveness ratings for video conferencing apps (2020: 86%, M = 4.18; 2021: 83%, M = 4.32) must be read against the background of the developments starting with the Covid-19 pandemic. Prior to the pandemic, respondents used videoconferencing apps primarily as part of individual pilot projects (e.g., online-only or hybrid courses). At the time of the second interview survey, they were proficient in a range of different

[6] To help respondents understand what is meant by each category, the questionnaire included examples (e.g., PowerPoint, Excel, Trello).

videoconferencing systems (E_I2a: 18), knew of their respective advantages and disadvantages (e.g., C_I7a: 52; C_I12a: 12; G_I1a: 10), and made more extensive use of the additional functionalities provided by the platforms (e.g., breakout sessions, chat functions, integrated apps):

> And so now we already work with group rooms, these breakout rooms. [...] I also see that with my trainers now. They more often use screensharing, additional apps, additional whiteboards that maybe offer more functions than the standard ones in virtual classrooms. (H_I2a: 14)

A sharp decline in usage among respondents is also evident for learning and content management systems (LMS/CMS) provided by continuing education organizations (2020: 82%; 2021: 69%). Their effectiveness ratings went up, however (2020: M = 3.88; 2021: M = 4.05). On the one hand, this might indicate that staff in 2021 were better able to choose and use LMS/CMS more appropriately for their own purposes than they were in 2020. The interview data show that LMS/CMS are used to support the teaching-learning process in asynchronous phases as well. Adult and continuing education staff see a wide range of possible applications, for instance as a knowledge documentation tool, as a place for exchanges with and among participants, or as information sharing platforms (e.g., F_I1: 25; C_I2a: 13; C_I13a: 44; H_I6a: 8). Usability is cited as the most important reason for or against using LMS/CMS: respondents state that using learning and content management systems makes sense if they are intuitive and easy to use.

Whereas the questionnaire only asked about online survey tools, the interviews of 2019/2020 show the use of additional online tools in a few isolated cases among respondents with a special interest in media education (e.g., E_I3: 12-13); in 2021, use of additional online tools was reported much more broadly. These tools are used to create quizzes, virtual bulletin boards, virtual surveys, learning modules, or project management workflows. Looking at both survey rounds, online tools are named primarily in connection with online offerings and less in connection with face-to-face offerings.

Chat apps (2020: 55%; 2021: 51%) and cloud computing services (2020: 49%; 2021: 50%) were used for classroom purposes by roughly half of the adult and continuing education staff at both survey times. The respective effectiveness ratings turn out to be relatively mediocre (2020: M = 3.69 & 3.69; 2021: M = 3.64 & 3.74), with an initially broad and then adequate standard deviation (2020: SD = 1.4 & 1.5; 2021: SD = 1.1 & 1.1). Supplementary analysis of the interview data shows that communicating via chat apps serves as an alternative to in-house organizational learning and communication platforms as a quick and easy way to manage organizational aspects of course delivery: “Organizing a course is easier, of course, if you have a WhatsApp

group." (B_I10: 112). To comply with data protection regulations, chat apps are mainly used indirectly, with participants rather than staff using them on their own initiative as a quick communication tool. This may also explain the relatively high standard deviation in the effectiveness ratings. At the same time, however, it can be seen that some staff are critical of commercial chat apps for data protection reasons (e.g., H_I2: 15; G_I3: 32).

Didactically structured digital media offerings

Concerning the use of didactically structured digital media offerings, a greater variety and clear differences in the effectiveness ratings at both survey times can be seen (see Fig. 4)[7]. Whereas the 2020 data still show strong variation in respondents' assessment of the benefits of individual digital media offerings, the connection between usage and effectiveness ratings becomes clear in 2021. In both, the 2020 and 2021 data, educators give higher effectiveness ratings to those digital media offerings that they have used more frequently. Media offerings used by only a few respondents receive lower ratings. This may indicate that certain media offerings, such as experimentation and simulation environments or intelligent tutorial systems (ITS), are less frequently available in the organizations. This would mean that necessary general prerequisites for piloting and building up experience are lacking.

Overall, it is apparent that adult educators mainly use those media offerings that are already fully developed and can be easily used in the classroom. These include videos, which are used in the classroom by a high share of respondents (2020: 81%; 2021: 78%) and whose effectiveness is rated as very high (2020: M = 4.2, SD = 1.0; 2021: M = 3.98, SD = 0.9). Supplementary analysis of the interview material shows that fully produced videos (e.g., on platforms such as YouTube) are readily used in course settings given their easy availability, and because it does not matter how the course is delivered (online only, face-to-face, or blended/hybrid):

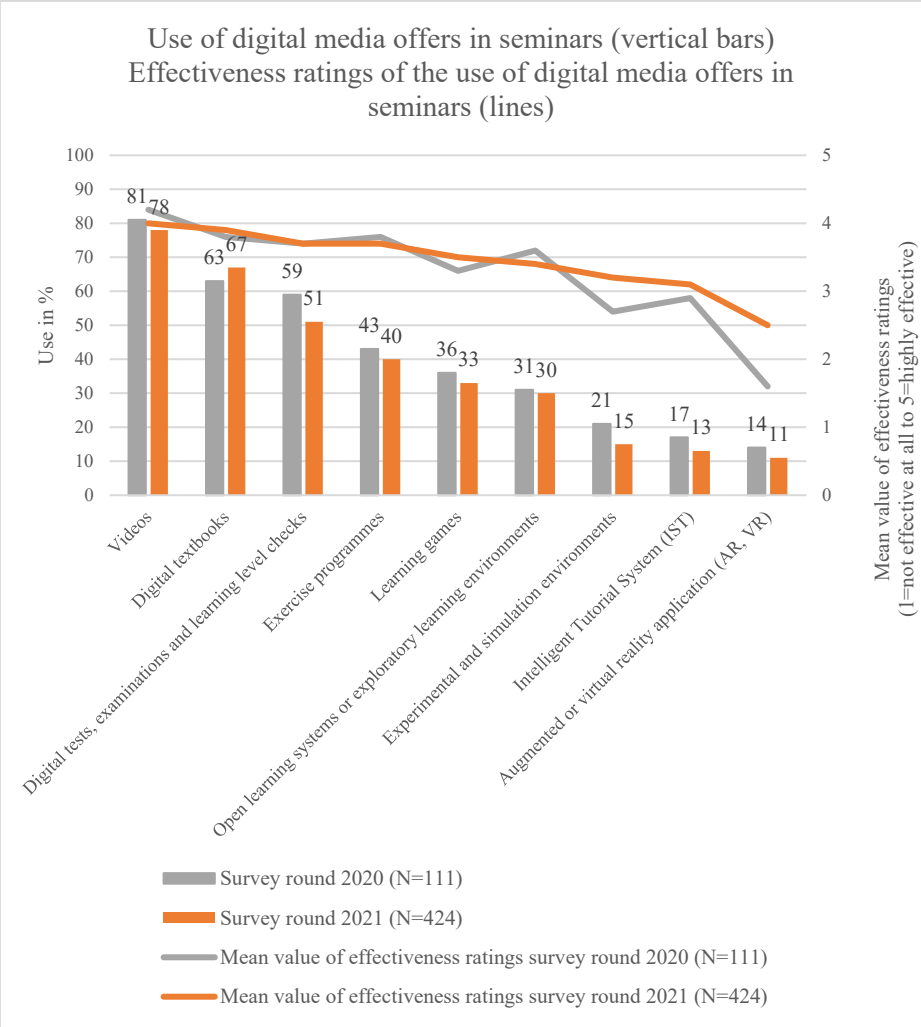
> Showing films, for example, is something I can do quite well. [...] In the past, people used to sit together in the same room, watched the film and then talked about it. Now that is done digitally. And it works, too. (C_I8a: 16)

It is less common for videos to be specifically designed for teaching purposes and then made available as a digital medium to be used in the classroom. Creating such videos involves prior didactic planning of the course

[7] To help respondents understand what is meant by each category, the questionnaire included examples (e.g., YouTube, Media Library).

setting, for example, on how to guide and support participants during asynchronous phases of self-directed learning, as illustrated by the following example: “blended learning, then of course we have videos [...] that are specifically adapted to this. [...] available for them as a resource if they want to go deeper [...].” (H_I5: 21)

Figure 4 - Use of digital media offers in seminars and effectiveness ratings of the use of digital media offers in seminars



Two-thirds of staff interviewed used digital textbooks provided to them, with a slight increase in usage rates (2020: 63%; 2021: 67%) and in

effectiveness ratings (2020: M = 3.77; 2021: M = 3.92). The interviews show that whether or not instructors use digital textbooks depends, among other things, on their being available at the organization or on their being purchased via umbrella organizations or external providers, such as publishers (e.g., B_I2: 4; F_I6: 48).

For all other digital media offerings, there is a decline in usage by the second survey round. This is also reflected in the interviews, in which respondents talk less about more complex media offerings. One possible explanation for this might be the nationwide switch to online settings, which forced organizations and staff to devote most of their attention to this effort and to concentrate many resources on creating the necessary infrastructures, installing the required hardware, and developing suitable teaching concepts.

A more detailed look at practice programmes enabling learners to practice and consolidate learning content shows that 43% (2020) and 40% (2021) of respondents use them in their courses. In 2021, around half of the respondents (51%) still used digital tests, examinations, and learning progress assessments in their courses. The use of digital tests, particularly in continuing vocational training, is closely linked to the curricular structures of the specific training programme for which they are developed (e.g., G_GD: 21). Moreover, they are used when they are provided by the organizations. Usually these are practice programmes for learners to use on their own.

Digital learning games (2020: 36%; 2021: 33%) and open teaching systems or explorative learning environments and teaching programmes (2020: 31%; 2021: 30%) are used less frequently by respondents[8]. One respondent talks about an open learning environment elaborately created by the organization (F_GD: 28). This indicates that the organization must provide extensive resources for its development. At the same time, such learning environments change the role of teachers: the content and suitable teaching approaches have already been prepared by the organization, leaving teachers to serve more as facilitators supporting the learning process.

The questionnaire data show less usage of experimental and simulation environments (2020: 21%; 2021: 15%), intelligent tutorial systems (ITS) (2020: 17%; 2021: 13%), which adapt to learners' knowledge and skills, and augmented or virtual reality applications (AR, VR) (2020: 14%; 2021: 11%). This suggests there are hardly any offerings available for use in adult education settings and that developing such offerings is considered to be very time-consuming. Again, we see that educators tend to use media that are already fully

[8] Open teaching systems or explorative learning environments provide content in a hypermedia format and in a manner suitable for teaching. Teaching programmes also offer didactic guidance to help learners navigate the learning process.

developed and can be used quickly and easily. Development and usage require extensive time and financial resources; moreover, the organization must provide the necessary infrastructure.

Digitalized data repositories as another type

Based on our analysis of the interview material, the original typology of digital media can be expanded to include the area of digitalized data repositories. These include, for example, digital legal texts, subject-specific databases, digital translation tools, vocabulary databases, or platforms providing video material on various topics. These data repositories, which are available online for the most part, are used by staff to prepare and conduct teaching-learning settings. This type of digital material is not specifically prepared to be used for teaching; rather, instructors use it based on their didactic planning and implementation of teaching-learning settings.

Conclusion

Breaking digital media down into digital media types, digital tools, and didactically structured digital media offerings provides a detailed insight into how digital media are used by adult and continuing education staff. With respect to media types, one the one hand, their usage is a macrodidactic question of room planning and media availability linked to the framework conditions in the organizations. On the other hand, the shift of teaching-learning settings into digital space means that questions of media usage are increasingly individualized, with individual instructors incorporating microdidactic considerations into their work. The strongest development is evident in the use of digital tools. Adult educators can become familiar with a wide range of digital tools and they are quickly and directly available, as well as easy to use. Adult education organizations and umbrella organizations have resolved licensing issues and established the digital infrastructure (e.g., hardware, bandwidth, power supply) and provide a stable and reliable framework for implementation. To some extent, this is also true of didactically structured digital media offerings. The latter often involve an elaborate development process or require costly licenses. It can be assumed that efforts in this direction have been put on hold at many organizations given the challenging situation of the past two years. The addition of a fourth type – digital data repositories – points to current and future dynamics and trends in the use of digital media. In summary, it is possible to draw some conclusions that are likely to be relevant to the use of digital media in adult and continuing education.

Key role of organizations and umbrella organizations in making digital media available

It is important to emphasize the key role of organizations and umbrella organizations. They play a major role in purchasing digital media and making them available for use (e.g., hardware, development of more comprehensive concepts, licenses for using tools). In this effort, they must engage in macrodidactic-level reflections not only about content planning but also about marketing their own educational programmes, for instance via social media (Grotlüschen, 2018). This perspective also includes recruiting, hiring, and professionalizing staff. The results suggest that it is not enough to just make digital media available; staff and instructors must be taught how to use them, for instance through suitable staff development measures and training programmes (Breitschwerdt & Egetenmeyer, 2021). Likewise, it is crucial to provide informal opportunities to try out digital media in the facility. The interview material points to the need for an organizational culture that is supportive and open in dealing with uncertainties in the use of digital media to motivate staff. In summary this illustrates, on the one hand, the value of focusing more on organizations in research, for instance regarding a culture conducive to digitalization. On the other hand, it reveals essential aspects for the organization themselves that appear relevant for digitization-related organizational development, such as personnel development that enables both formal and informal opportunities for professionalization. With regard to the umbrella organizations, the results also point to their importance in creating structures in negotiation with political actors, for instance concerning funding and the legal framework of digital media use.

Distinction between micro- and macrodidactic considerations

Overall, the results show that digital media are already widely used in the organizations surveyed. At the same time, this clearly changes the role of the organizations. Aside from shifting the content-related and didactic management of programmes and offerings involving digital media to the macrodidactic level, this affects organizational and staff development processes that address these digitalization-related changes and establish an organizational culture that leads to a joint development of adequate concepts of digital media usage. This clearly illustrates that using digital media requires didactic considerations at the macrodidactic planning level (Fleige et al., 2018; Fleige et al., 2018; Hippel et al., 2018). A framework must be established at the organizational level to address questions about equipping rooms with digital media types (e.g., interactive whiteboards), making digital tools available (e.g.,

videoconferencing apps, learning and content management systems), and establishing didactically structured digital media offerings (e.g., digital textbooks, open teaching systems). Developing more complex media offerings requires cooperation with the instructors to create a didactically meaningful framework for using digital media. This calls for establishing basic collaborative strategies between teaching and planning staff. More detailed research is needed, especially regarding the planning staff, who will in the future be increasingly involved in didactic questions in the planning phase.

Changing staff roles

The use of digital media changes not only the requirements for the didactic actions of staff involved in programme planning but also the role of instructors, who increasingly become learning facilitators supporting teaching-learning processes (e.g., Schüepp, 2018; Sgier et al., 2018). Furthermore, new roles are emerging that are responsible for providing technical support to teaching-learning settings, for example (e.g., Zierock, 2016). The challenge here is that these new roles are not necessarily performed by additional staff, but rather become an additional responsibility of instructors themselves. Organizations provide a media framework in terms of digital media, which is not only provided for the participants but also guides the didactic options of the instructors. In the future, adult education will have to deal with how to address the demands on teaching and learning settings, which are becoming more complex with the increasing use of digital media. This raises basic didactical questions, including ways of implementing these didactic concerns in the organisational culture, for example, how to involve and support participants in their media use or how to facilitate cooperation between different actors (e.g., facilitator, technical support, etc.) around the design of teaching and learning settings.

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Saggi e ricerche

What Worked? A Qualitative Study on the Tutor-Tutee Relationship in the Tutoring Online Program (TOP)

Giulia Pastori, Elisa Farina*

Abstract
The transformative processes that have involved the academic world for more than two decades have been accelerated and renewed in the wake of the Sars Covid-19 Pandemic. Universities, already oriented towards the promotion of smart, sustainable, and inclusive growth, have nevertheless been called upon to rethink and reshape the services, projects and methodological approaches previously developed. The aim of this paper is to describe a qualitative study carried out within the Tutoring Online Program (TOP), designed to respond to the new demands brought to light by the pandemic. After outlining the innovative characteristics of TOP, where the tutors are volunteer university students and the tutees are secondary school students, the results of the qualitative research are presented. The aim of the survey is to identify the elements which, in the perception of the tutors and tutees, may have supported, or on the contrary limited, the creation of a meaningful relationship developed entirely online.

Keywords*:* Higher Education, Covid-19 Pandemic, online tutoring, learning loss, school demotivation.

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Transformative processes in academia: tutoring

The SARS COVID-19 pandemic has brought academia and schools face to face with new problems triggering, on the one hand, unprecedented transformative processes and reinforcing, on the other, changes that were already taking place.

Since the 1999 "Bologna Process" – which laid the foundation for the construction of a European Higher Education Area – and in compliance with the goals set by the "Lisbon Strategy" (Colarusso, Giancola, 2020), and the Europe 2020 Strategy (European Commission, 2020), academic institutions have been geared toward achieving goals such as promoting smart, sustainable and inclusive growth, which can be achieved through several targets, including lowering school dropout (less than 10 percent) and increasing the number of young Europeans with college degrees (at least 40 percent). To achieve these goals, universities have put policies and practices into place that address inequality in access conditions and discrimination among students to ensure ever-expanding educational and academic success. In particular, the various forms of tutoring (tutoring and peer tutoring) have been activated, both to develop skills and competencies useful for the study career and to limit the dropout rate, appear to be a particularly effective pedagogical device (Passalacqua, Zuccoli, 2021; Galliani, 2019; Biasin, 2018; Chianese, 2018; Claris, 2018; Gray, Osborne, 2018; Oggionni, Palma, Stiozzi, 2018).

> Tutoring is referred to as a primary pedagogical device to foster students' empowerment, to help them make study, personal, and professional choices. At the same time, tutoring constitutes one of the main strategies of Italian universities to limit academic drop-out, so much so that it is an indicator of the quality of teaching action and the inclusion of services put in place by a university system (Biasin, 2018, p 150).

However, tutoring or peer tutoring projects that had just started or were long-established – where the building of an educational relationship, based on the reciprocity of the interaction and sharing between tutor and tutee, constituted the essence of the educational process – were disrupted by the forced closure of universities following the pandemic. The transformative processes already in place were therefore necessarily strengthened and reshaped in light of the new social conditions.

Transformative processes during lockdown

In Italy, the almost total closure of all educational services (from ECECs to

universities) for a very long period (from March to September 2020) was, in fact, a unique event in our century that caught all those involved unprepared: students, teachers and families. The distance learning that was activated in order to maintain the educational relationship and learning achievement required not only the presence of infrastructure, PCs and other devices but also specific training in the use of ICT (Information and Communication Technologies) (Pastori, Pagani, Mangiatordi & Pepe, 2021). In the face of what can be called the largest homeschooling experiment of our century, research has shown how distance learning has had a concerning impact both in terms of student learning and academic achievement (Hoffman & Miller, 2020; Kuhfeld & Tarasawa, 2020) and in relation to the social development of children and youth unable to attend school (Bhamani et al., 2020). Moreover, Distance Learning (DaD) has increased levels of educational poverty, school dropout, which are directly proportional to the socioeconomic status of families (Nuzzaci, Minello, Di Genova & Madia, 2020; Bonal & González, 2021).

Faced with this alarming scenario, universities have questioned themselves with respect to sustainable policies and practices to implement or reshape in light of the new social conditions, in order to support the most fragile students in terms of motivation and school learning. Some universities have responded by activating distance tutoring projects aimed at freshmen (Passalacqua, Zuccoli, 2021), peer tutoring to support those students who, due to the pandemic, have considerably slowed down their studies (Di Vita, 2021) or online supervision of internship experiences (Giuliani, 2021).

Precisely within this framework, with the aim of mitigating the inequalities in educational opportunities generated by the pandemic, the "Tutoring Online Program" (TOP) project was established, characterized by distinctive and innovative characteristics that responded to the priorities of smart, sustainable and inclusive growth described by the European Strategy 2020 (European Commission, 2020).

Tutoring between university and school: Tutoring Online Program

To counteract growing learning loss resulting from school closures that occurred in Italy in March 2020, the University of Harvard (Massachusetts) and Bocconi University (Milan) designed and piloted an innovative Online Tutoring Program for Secondary School students on whom the effects of the pandemic have been particularly substantial, in both psychological and learning terms. After the first edition, held from April to June 2020, two more were launched: one started in October 2020 and ended in May 2021 and one is currently underway.

The innovative character of the project, besides the fact that it is totally provided online, regards the configuration of the tutor (volunteer university students) and tutee (secondary school students) pair. The latter were identified through the collaboration of the educational institutions and families that participated in the project; the selected pre-teens, who encountered significant difficulties following the activation of DaD, were found to belong to economically, culturally and socially disadvantaged families who, as previously mentioned, are among those most affected by the pandemic and lockdown. A total of 1,059 applications were received from 76 different secondary schools throughout Italy: the schools indicated the subject (choosing between Italian, mathematics and English) the student most needed help; for 81% of the pupils, help was required in more than one subject (Carlana & La Ferrara, 2021).

The tutors, on the other hand, were enrolled in the various bachelor's and master's degree programs at different universities, aged between 20 and 25, and were recruited voluntarily through project sponsorship within the universities; they were required to be available 3-6 hours per week to support online tutees in carrying out tasks or in the disciplines they indicated. The number of applications reached 2,000; however, for organizational reasons related to tutor training, 530 tutors were chosen. The assignment of tutors to tutees was made by considering, as a basic criterion, the correspondence between the discipline requested by the tutee and the one for which the tutors had given their availability.

Given the voluntary and heterogeneous nature of the tutors (with very different training and prior work experience in education), the project was implemented with pedagogical supervision by a group of experts from the University of Milano-Bicocca to train and support the tutors with respect to pedagogical-didactic and methodological issues. A special course was established within the e-learning platform of the University of Milano-Bicocca in which all tutors were enrolled. Online self-training modules were designed aimed at providing tutors with the main theoretical concepts of tutoring (following the socio-constructivist and Brunerian matrix) and their methodological and didactic implications. In addition, the group of experts offered specific training related to the didactics of the disciplines which they would work on with the tutees (Italian, mathematics, English), as well as insights into the use of technologies in distance education and concepts and methodologies related to teaching students with Special Educational Needs and, in particular, with Specific Learning Disorders. Supervision took place throughout the course of the project through online meetings with groups of tutors or individuals to address specific problems encountered in the relationship or teaching with individual tutees; in particular, there were

numerous requests to delve into aspects related to teaching with students with Specific Learning Disorders or foreigners. This was due to the fact that only 4% of the tutors had training related to the topic of specific learning disorders while 32% of the tutees had such disorders; furthermore, only 1% of the tutors had prior training specifically for working with immigrant pupils who, on the other hand, were found to be quite numerous (22% of the sample), (Carlana & La Ferrara, 2021).

According to a survey conducted at the end of the program, 80% of the tutors used the platform, 50% watched the video tutorials and followed the online training, 36% participated in group meetings and 12% in individual meetings (Carlana & La Ferrara, 2021).

Finally, with respect to the objectives of the Program, as previously mentioned, an immediate response to counteract, in terms of learning, the effects of school closures and the activation of DaD following the health emergency was activated. While the main objective was to support and enhance tutees' learning in the above-mentioned disciplines, the relationship and rapport established between tutors and tutees allowed for the improvement of the pre-teens' psychological well-being, their aspirations as well as their social-emotional skills (Carlana & La Ferrara, 2021). In order to gain a deeper understanding of the relationship between tutor and tutee and to assess aspects that may have fostered or hindered the relationship, qualitative research was conducted.

Which tutoring model was implemented in TOP

The tutoring model that inspired the entire project can be traced back to the Brunerian matrix according to which tutoring strategies intercept not only cognitive dimensions but also emotional, motivational and metacognitive ones (Wood, Bruner & Ross, 1976; Devescovi, Marchione, Capobianco & Bentrovato, 2003). In this framework, the role of the tutor is configured, therefore, as a facilitator, organizer and guide to learning (D'Alessio, Laghi, Giacalone, 2010) enhancing the tutee's resources in order to make him or her more and more autonomous in their own learning process (Scandella, 2007). The role of emotional scaffolding that the tutor is able to provide by prioritizing the relational-communicative dimension in order to enhance the tutee's motivation, self-esteem and sense of self-efficacy turns out to be decisive. Alongside this, the cognitive scaffolding function that the tutor is able to provide takes the form of both lightening the cognitive load and simplifying the task, so that it can be attainable for the tutee (reduction of degrees of freedom), and identifying, together with the tutee, the crucial and relevant aspects of the task to be performed by posing as a "model" for problem solving. Finally,

according to this tutorship approach, the tutor's intervention turns out to be aimed at making the tutee become aware of his or her own learning process; the tutor thus plays a metacognitive scaffolding role by guiding the tutee to assess whether the strategies used in solving a task are effective, helping him or her to adjust, therefore, his or her own cognitive functioning in situations where problem solving is required.

The intertwining of these functions outlined the tutorship model that inspired the Tutoring Online Program to facilitate the establishment of an effective educational relationship aimed at achieving the program's intended goals.

The qualitative study

Speaking of an educational relationship within a tutoring project developed entirely online may seem, apparently, an oxymoron. However, if every formative process is always mediated by the places, tools and times that constitute it (Potestio, 2003), this means that even online tutoring, although characterized by different times, spaces and means, can trigger formative processes that will be all the more effective the more an educational relationship can be established, even at a distance. It is precisely within this relationship that the tutor can accompany tutees, facilitate the acquisition and development of new knowledge and skills through a non-directive helping style. Starting from these assumptions, within TOP we wanted to investigate, through qualitative research, what dimensions in the perception of tutors and tutees may have supported, or on the contrary limited, the creation of a meaningful relationship: aspects inherent to the educational relationship, the training support given and received, the advantages and critical issues with respect to distance learning. The ultimate goal of this work was to improve the orientation and quality of the educational processes, as well as an advancement of pedagogical, methodological and didactic supervision aimed at tutors in view of future editions of the project.

All the tutors and tutees who were part of the TOP project received an invitation to participate in the study via email, requesting their willingness to participate in a series of interviews aimed at understanding some aspects of the experience carried out. The total number of subjects who concluded all the interviews was 16 tutors and 9 tutees (3 from class 1, 3 from class 2, and 3 from class 3). The interview was administered remotely using Google Meet at the end of the school year (June 2021), also when the TOP project concluded.

Methodology: theoretical assumptions, interview themes and techniques

Given the characteristics of the subjects involved in the research and considering the age and scholastic difficulties of the tutees, the choice was made to develop a semi-structured interview that, despite providing an outline to be followed – albeit in a non-rigid manner – flexibly adapted to the content and thoughts proposed by the interviewee, leaving him or her more free in the formulation of their responses (Cardano, 2003; Pastori, 2017). The interview was structured from Pianta's (1997) Teacher-Child Relationship Interview (TRI), used to assess teachers' ideas of themselves and their relationships with students and the Adult Attachment Interview (AAI) (Main & Goldwyn, 1994). These instruments, although developed for subjects other than tutors/tutees, made it possible to identify some fundamental dimensions referring to the educational relationship by also requiring tutors to describe, through concrete examples, their mental representations with respect to their relationship with tutees.

In order to achieve the objectives described above, 14 questions were formulated for tutors and 12 for tutees; for the latter, the questions were simplified both in the design phase and in itinere after the first interviews were conducted, as they were evaluated as too complex. The questions, consistent with the purposes of the research, investigated:

- The relationship between tutor and tutee: tutors had to choose three words to the relationship with their tutee. This request, however, proved too complex for the tutees so it was decided, using the Photolangage method (Frison, 2016; Pastori, 2017) to have them choose a few pictures (from those presented) that best described their relationship with the tutor and explain why. Both were also asked to indicate moments when they felt particularly connected.
- Expectations and emotions, indicating what they were at the beginning and end of the course and what motivations had led them to participate in the program (tutors only).
- The goals the tutor intended to achieve with the tutee.
- Self-perception with respect to one's role as tutor/tutee: the former was asked about their perceptions with respect to their doubts, abilities and skills; the latter how they perceived themselves in relation to studying (Do you feel able to study? Why?).
- The critical issues and advantages with respect to the distance relationship and strategies used.
- The support received: for the tutors, we referred to pedagogical supervision and materials viewed while for the tutees we asked whether the tutor's support was useful and whether it affected their perception of school.

- A general evaluation: tutors were asked about possible changes that occurred in the tutee and tutees were asked to recommend/not recommend to a friend both the tutoring course and the tutor they had.

Data analysis

All interviews were recorded, and the audio was transcribed and analyzed using the reflexive thematic analysis (TA) method (Braun & Clarke, 2006). Within the text corpus, recurrent and significant patterns were identified through text coding. The definition of the themes did not take place a priori but through a bottom- up inductive mode: in fact, the code grid was created a posteriori after careful reading and familiarization with the text, which allowed for the identification of relevant concepts to describe the phenomenon under investigation (Auerbach & Silvestrein, 2003; Pastori, 2017). Micro-codes were also identified for each macro-code to further detail the responses, capturing the specificities of both groups interviewed (tutors/tutees). Below are the extrapolated codes with their respective sub-codes.

a. Emotional-relational:
   a.1. Self-esteem and sense of self-efficacy (tutor);
   a.2. Interpersonal confidence (tutor);
   a.3. Motivation and self-esteem (tutee);
   a.4 Relationship symmetry/asymmetry (both).

b. Learning:
   b.1 Cognitive and metacognitive learning (tutee);
   b.2 Teaching support (tutee).

c. Online tutoring
   c.1 Advantages and disadvantages of online tutoring (both)

d. Objectives (only in tutor responses)
   d.1 Educational goals vs. relational goals.

Results

The analysis of all the interviews led to the detection of the components that determined the quality of the relationship, which occurred entirely at a distance, between tutors and tutees. The three dimensions that influenced the quality of the relationship, grouped into macro-categories, are presented below.

The emotional-relational components

As with tutoring actions that occur in-person, in online tutoring the emotional-relational components also influenced the quality of the interpersonal relationship between tutor and tutee. In particular, the management of emotional components such as interpersonal trust and esteem appear to be the most noticeable in respondents' answers, as can be seen from the excerpts below.

> Tutor: so in general I think the connection was created the moment she started to trust me because very often it happened that even outside of class she would ask me for opinions on certain papers that she had to do or at least things that we had not seen together. [...] During the final period when we talked about her new school, she really opened up [...] and I understood that she trusted me and there was syntony.

Trust, however, was not easy to gain, especially for particularly shy tutees who, even for a lengthy time, kept the camera off or showed only part of their face. The following tutee admits his initial shyness and subsequent confidence in the tutor.

> Tutee: well, the first time I was very nervous, not showing myself, more or less just showing my eyes and then instead seeing even more, I mean, I realized that anyway she was nice, intelligent and I liked her character in general and so I tried to open up more and I found that anyway she was nice and sweet intelligent um, I really like this thing about her because she helps people a lot.

Establishing a climate of trust created a virtuous circle that increased both self-esteem in the tutee and, consequently, a sense of self-efficacy in the tutor.

> Tutor: yes, he improved so much from the point of view of self-esteem, in the sense that I really feel that I encountered him up as a boy who had lost his will to act after flunking out. By helping him and making him realize that he was able to do things anyway, his self-esteem grew so much [...] For me it was a great satisfaction.

The focus on these emotional-relational components occurred when the tutor was able to balance the asymmetry/symmetry inherent in playing a more formal role (relatable to the figure of the teacher) and a more informal one (relatable to the role of an “older friend”). In some cases, as in the examples below, the tutor’s sharing of experiences similar to those the tutee was experiencing, or his/her willingness to listen, facilitated the establishment of a good educational relationship that was essential for managing the learning process.

Tutor: there were moments when I felt connected with her, she is also Muslim and I am too; so, we also got to talk. There was Ramadan during class: I was tired, she was tired because we were fasting; so, she was a little lost and I said, “look, I know very well what it means!” and so there was more of a connection there.

Tutee: when we finished the meeting we talked a little bit about our life; yes, there it was very nice; in fact, because I hadn’t talked to anyone about these things, I mean, about my life in general for a long time. Actually because I don't have many friends, I only talk to my family, and however, instead with her I found myself just... I wanted to tell her that she was just like a friend, I was talking to a friend.

However, if the tutee continued to perceive the tutor’s role as formal, the asymmetry between the two roles grew, affecting the quality of the relationship.

Tutor: then she opened up a little bit, a little bit more, but never letting go, feeling really comfortable; in fact, this really bothered me, she always felt a little bit like I was not her equal, because I kept saying, “look I study just like you,” and instead she always felt like I was the tutor, that’s it.

Thus, in those tutor/tutee pairs where the relationship was characterized by mutual trust and esteem, a helpful relationship seems to have been established that enabled the tutee to receive support not only regarding the disciplinary learning dimension, but also the social-emotional one.

Cognitive development and the acquisition of new knowledge

Since the main goal of the project was to help tutees in doing their homework and consequently to enhance their learning, the interviews also investigated the quality of the methodological and didactic support the tutees received. The interviews revealed differences with respect to the characteristics of the help offered, which, in some cases, was perceived as a “simple support in doing homework” while, in others, it was experienced as a real intervention aimed at teaching-learning strategies to improve their study method.

Tutee: so I changed my study method; the tutor helped me, that is, she told me study methods that could be helpful to me, I tried them and eventually I found that it isn’t so difficult to study, that is, it can be a nice thing.

Tutee: When I would study the most boring subjects I used to study alone, because alone you have the mind-set: there’s no one to explain it to you, you have to study it by yourself and if you’re with your phone you’ll get a four (a failing mark) for sure. But now, even when I didn’t study geography, history with her, those subjects

that are more monotonous, more boring, I got 7, 6, 9, however she also helped me a lot, gave me tips on how to study.

The most effective interventions in terms of learning, therefore, appear to be those in which tutors have set themselves the goal of developing functional strategies for the method of study in the tutee, regardless of the subject and the tasks at hand. It is precisely this focus that has led to a change in the attitude of tutees who, from being passive and often unmotivated learners, began to take a more active role regarding individual discipline or study in general.

Tutee: I felt particularly in tune when I had understood what she was explaining to me and so I could keep up with it [...] When she gave me maybe a math problem to do I would tell her what to do and she didn't have to explain anymore. We felt a little bit better, I mean we also enjoyed it, because you could see that she had taught well and I had understood well.

This interview excerpt is particularly significant because it highlights how a good relationship between tutor and tutee ("we felt good") was determined by the tutee taking an active role in his own learning process ("I would tell her what to do") to the extent that the tutee was able to explain the process needed to solve the task. The work of tutors, not only focused on the product (the tasks), but also on the learning process and the acquisition of new strategies through metacognitive teaching, also proved to be instrumental in increasing motivation and improving the quality of the relationship, as also evidenced by studies on metacognition (Dettori & Letteri, 2021; De Beni & Moè, 2000). In the following interview excerpt, the tutor states that "something changed" after introducing the tutee to the GeoGuessr game (consisting of moving within virtual maps using the Google Maps application) to support him in studying geography.

Tutor: I think the point that made things change was just introducing him to this game, because from there we started a second word, "curiosity" let's say, which really marked this experience so much because in my opinion he is not stimulated at all in school [...]. He's a boy who, with the right topics explained in the right way, is very curious, asks a lot of questions and is interested in finding out things about the world [...]. From that moment he was asking, asking, so definitely curiosity!

Finding a tool in harmony with the tutee's cognitive style and learning mode not only increased the student's curiosity by making him proactive in studying, but it also initiated a new learning strategy – based on the posing of questions – which is fundamental in understanding a text (Cardarello & Bertolini, 2020).

Tutor interventions aimed at acquiring new knowledge and supporting the cognitive process to increase tutee awareness of their own learning strategies and study method (and especially for students with Specific Learning Disorders) can be considered the best compensatory strategy (Bianchi, Rossi & Ventriglia, 2011).

Managing online "space"

The quality of the relationship is also inevitably influenced by the space where tutor and tutee interact; if, in person, the space takes shape according to the people and objects that inhabit it, online, the absence of physical space can have different repercussions depending on the characteristics, including emotional ones, of the subjects. In fact, discordant opinions emerged from the interviews with respect to the online learning environment: while for some it was precisely the distance that ensured a relationship, especially with those tutees who were particularly shy, for others managing this space was a barrier.

> Tutor: the big advantage was the lack of human contact, because starting a long-distance relationship with a very shy guy made things easier in my opinion [...] Directly and physically dealing with a person who you haven't had a chance to familiarize with is a little bit "too much" [...] He felt a little more secure at a distance, in his little room – with time, he came out of his shell.

The distance, in this case, proved to be a kind of protection that allowed a gradual mutual approach leading the tutee to coming out "from his shell." However, in other situations, the tutee took advantage of the possibility to turn off their camera to make "their space" unreachable.

> Tutor: since she had control over the audio and video, during the last two months she decided not to show up anymore, so we basically did the video calls with no camera. [...] without the camera on, she would get a snack, come back and say "yes yes I'm doing the assignment, I'm doing it."

Technology provided the tutee with the freedom, unthinkable in a face-to-face relationship, to manage the learning space and determine the timing of his or her own attention; this created an obstacle for tutors in building a meaningful relationship. The potential of technology, however, was also positively exploited to broaden "educational offerings" as tutors made use of the web (using, for example, You Tube or Netflix), as well as digital applications and tools to increase tutee attention or to better adapt the lesson to the cognitive characteristics of the students. The digital environment made it possible to vary the means of representation, necessary to provide tutees with different ways of

acquiring information and knowledge (Cottini, 2019): the possibility of having different mediators (visual, auditory, textual) to support comprehension "just a few clicks away" had positive effects on the relationship with the tutee, increasing his or her motivation to learn.

> Tutor: we explored New York together and after that Texas and I said, "Anyway look, this is the same country, I mean we're still in the United States, look how different it is!" So then he started asking me, "What about this other place, what's it like?" And then I showed him all the parts of America, how it changes, and that time was maybe the most fun because it was just one question after another.

Finally, both tutors and tutees highlighted the greater flexibility, in terms of time and space, that online tutoring allowed compared to face-to-face tutoring. The time savings afforded by being able to connect from home and the cancellation of distance – which allowed tutors and tutees from all over Italy to work together – were rated positively by interviewees.

Conclusions

Through the qualitative research conducted within the Tutoring Online Program and described here, it was possible to analyze the relationship established during online tutoring between tutors and tutees in-depth.

Although the number of respondents was small, the analysis of the semi-structured interviews made it possible to bring out those factors that, in the eyes of the tutors and tutees, made the tutoring relationship functional even at a distance.

In fact, the tutor's ability to pay attention to communication and the creation of a climate of mutual trust and esteem, even before focusing on the educational objectives, seems to have been a discriminating element. The support of the emotional dimensions occurred as tutors managed to balance the asymmetry inherent in their role with more informal attitudes aimed at accommodating the tutee's needs, resulting in a more "horizontal" relationship.

In addition, comparing the tutees' interviews with those of the tutors, it emerges how the latter's focus on cognitive processes, on the tutee's search for functional strategies and on the activation of metacognitive strategies, was instrumental not only in improving the younger student's knowledge but also in forging an effective relationship, improving the tutee's method of study and, in general, the tutee's attitude toward school.

Finally, regarding online tutoring management, the digital environment and tools affected the effectiveness of the intervention where tutors were able to

take advantage of the potential offered by technology: having a multiplicity of tools and applications readily available proved to be strategic in increasing the tutee's engagement or motivation.

If, therefore, emotional and metacognitive valence, as well as digital skills, appear to be key elements in establishing a good online relationship between tutor and tutee, it follows that tutor training for the new editions of the project should follow these trajectories; on the one hand, it is necessary to design training paths aimed at preparing tutors for a metacognitive approach to teaching, aimed at promoting awareness of learning and the strategies implemented in tutees, in order to be able to use them in other contexts as well; aa well as, on the other hand, training paths that outline the identity of the tutor and his or her scaffolding functions, including emotional ones, in order to stimulate the tutee to learn, acting on motivation, self-esteem and sense of self-efficacy. All this must necessarily be rooted in good knowledge and skills with respect to digital environments that can foster learning.

Taking into consideration the outcomes of the quantitative study conducted on TOP (Carlana & La Ferrara, 2021), the tutoring program established does not represent merely a formative and educational investment for universities, but also an ethical and social one. The distinctive and innovative feature of TOP, where university students provide their time and knowledge to support younger and struggling students, contributes to the promotion of a civic sense among older students. Thus, the Tutoring Online Program represents an inclusive and sustainable model – in line with the goals universities should strive for – which will hopefully equip future generations with a higher capital, not only a cultural one but also human and social.

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Saggi e ricerche

Impacting Culturally Responsive Teaching Strategies by Decreasing Bias Through Simulation Experiences

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Abstract
Simulated teaching environments have been used for more than two decades and are likely to continue to expand to meet the demands of teacher development programs. In this study, the self-reported changes in culturally-responsive teaching perceptions of ten classroom teachers serving more than six hundred students are reported. This paper includes first year findings from a program designed to use artificial-intelligence (AI) based algorithms to reduce implicit bias in teaching. Findings from this study include significant pre-post increases for self-efficacy related to culturally responsive teaching as well as instructional self-efficacy. These findings add credibility to the contention that a key innovation of using simulation programs for teacher professional development is that it provides teachers and teacher trainees many learning trials with simulated students, thereby increasing teacher confidence and competence, and which in turn will improve student learning. Findings set the stage for measuring the impact on student perceptions of learning and cultural engagement intended to support teachers in recognizing and ameliorating their own implicit biases.

Keywords: simulated teaching, reduce bias, teachers, culturally responsive, artificial intelligence

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Introduction

Classrooms are becoming more diverse as they reflect the society in which we live. Gender, ethnicity, socioeconomic status, and English language learning status have been linked to differences in teacher perceptions of students for whom they may hold implicit negative attitudes and stereotypes (McGinnis, 2017). To address the diversity of differences, educators need to actively recognize and counter patterns of bias in their teaching practices as well as classroom environments (Chen et al., 2009).

Danielson (1996) surmised that a typical teacher makes up to 3,000 important decisions during a day of instruction, many of which have varying impacts on different types of learners in the classroom. It is imperative that educators provide a culturally responsive environment for all students to be confident in their learning (Derman-Sparks & Ramsey, 2000). Cultural responsiveness requires looking beyond teachers' own beliefs, cultures, perspectives and practices to being able to understand where implict biases may exist and how they can be overcome. Operationally, teachers need to be able to plan and deliver culturally responsive instructional challenges and supports that build on the strengths of students to address their learning needs (Sianjina, 2000). Teachers need to be able to assess students after an instructional activity and analyze student results, enabling adjustments to their instructional practices (Girod & Schalock, 2002).

This paper explores the use of a simulated teaching program to enable educators to recognize, reflect and remediate implicit biases that may exist in their teaching practices. Specifically, the paper addresses how the personal attributes of a teacher can be recognized, assessed and related back to teaching practices in an unobtrusive environment where underlying biases can be identified, acknowledged and remediated.

Background and Supporting Literature

Effects of Implicit Bias on Students

Demographics of teachers often do not reflect the growing classroom diversity; the educators serving these diverse students are predominantly white, female and middle class (Taie & Goldring, 2020) and have been found to infuse their teaching with implicit and explicit biases that may benefit one group to the detriment of another (Gay & Howard, 2000). K-12 teachers in the US today continue to be under-represented by minorities (US Dept. of Ed., 2016) which has an overall negative impact on diversity in the pursuit of careers and income

potential (NSTC 2018). Even the most dedicated educators hold beliefs and stereotypes that impact their students' learning. Ethnicity, native language, gender, and economic status have all been linked to teacher biases (McGinnis, 2017) and the negative impact of stereotypes may be additive (Copur-Gencturk et al., 2019). If unexamined, these beliefs can be harmful to students.

Implicit bias is described as the attitudes or stereotypes that affect our understanding, actions and decisions in an unconscious manner (McGinnis, 2017; Staats, 2015-16). Most neuroscientists agree that the majority of our cognitive processing occurs unconsciously (Soon et al., 2008). Because implicit associations are unconscious, implicit biases do not necessarily align with our explicit beliefs and stated intentions (Staats, 2015-16). Personal history and experiences may lead teachers to directly or indirectly attribute those experiences to students they teach (Graham, 2017). While we may not be aware these biases exist, they can have a significant impact on decision making. Some situations in which we are likely to rely on our subconscious for decision making involve ambiguous or incomplete information, the presence of time constraints in addition to fatigue or an overloaded mind (Bertrand et al., 2005). Given that teachers are often in these situations, it is not difficult to imagine that implicit biases may be contributing to their decisions (Staats, 2015-16) regarding how they interact with students along lines of gender, socio-economic status, ethnicity, and language proficiency. It is critical to identify evidence of these kinds of biases in instructional decision-making in order to foster supportive conversations with practitioners and build skills for culturally responsive teaching (Gauthier et al., 2022).

Gender and race are known to intersect to create inequitable interaction patterns; girls of color are least likely to receive teacher time and attention (Sadker et al., 2016). Providing teachers with objective information about the gender distribution of their interactions with documented behavioral changes over time during repeated similar teaching situations can improve gender biases that may exist.

Research has shown that teachers generally have lower expectations of their students living in poverty (Hecht & Greenfield, 2002). Of all the children living in poverty, the poverty rate for Black children (31%) and Hispanic children (26%) is higher than the rates for White and Asian children (10%) (de Brey et al., 2019). Research has shown that implicit biases such as teachers' expectations for particular students can harm academic outcomes for minority students, perhaps explaining differing racial achievement gaps (van den Bergh et al., 2010). Minority students are more often referred for Individualized Education Plans (IEPs; U.S. Dept. of Ed., 2021).

English Language Learners are defined as students who have sufficient difficulty speaking, reading, writing, or understanding the English language to

be able to learn successfully in classrooms or to participate fully to society (de Brey et al., 2019). In one large study regarding teacher attitudes toward ELL, 70% of the respondents were not interested in having these students in their classrooms and 51% did not intend to pursue additional training (Walker et al., 2004). There is also a negative perception toward multilingual learners in Europe and a lack of focus on preparing teachers to work with these learners (Erling et al., 2022. Of particular interest, one study found that mainstream teachers' implicit beliefs about ELL were negative while their explicit beliefs were more positive with these contradictions likely influencing the deliberate, conscious and spontaneous choices teachers make each day (Gawronski & Bodenhausen, 2006). Most classroom teachers have little or no training in adapting their teaching practices to meet the needs of linguistically diverse students (Walker et al., 2004).

Teacher Self-efficacy and Student Learning

The concept of perceived self-efficacy is rooted in social cognitive theory and is "concerned with judgments about how well one can organize and execute courses of action required to deal with prospective situations containing many ambiguous, unpredictable, and often stressful elements" (Bandura & Schunk, 1981, p 587). An individual's perception of ability to impact a situation is critical for whether or not they actually do affect change (Bandura, 2012). Teachers' beliefs about their ability to make a difference for students impacts their resilience and persistence in difficult situations (Gibson & Dembo, 1984).

Many research studies have found that a teacher's sense of self-efficacy was one of the variables highly related to student achievement (Tucker et al., 2005). Teachers with high self-efficacy are more likely to believe their teaching can impact student learning while teachers with low self-efficacy are more likely to look for solutions outside the classrooms (Soodak & Podell, 1994). One way that teachers can develop their self-efficacy is by understanding the needs of learners in the classroom with strategies to teach them. "Teachers who believe that student learning can be influenced by effective teaching despite home and peer influence and who have confidence in their ability to teach persist longer in their teaching, efforts, provide greater academic focus in the classroom, give different types of feedback, and ultimately improve student performance" (Tucker et al., 2005, p. 29).

Researchers have identified connections between teachers' sense of efficacy, culturally responsive pedagogy (Callaway, 2016), and student achievement (Oyerinde, 2008; Tucker et al., 2005).

Research on teacher efficacy and its relationship with culturally responsive teaching illustrates a need to address teacher self-efficacy with respect to

working with children from diverse backgrounds (APA, 2012; Oyerinde, 2008; Tucker et al., 2005). Efforts to increase teacher efficacy are vital in increasing the low academic achievement among culturally diverse students (Callaway, 2016; Tucker et al., 2005). Highly efficacious teachers have more persistence when helping struggling students, and they create lessons designed to engage their students (Kitsantas, 2012).

Using Simulation Experiences to Improve Teaching Strategies

Simulations mimic a simplified version of the real world allowing intentional design features to focus on specific features of interest for instruction. These "approximations of practice" (Grossman et al., 2009) allow users to try out strategies and receive targeted feedback in a scaffolded way in a low-stakes environment. Badiee (2012) identified four advantages to simulation based teaching: (a) classroom decision-making, (b) practice through repeating, receiving feedback and advice, (c) self-efficacy in classroom teaching, and (d) collaborations and social interactions. Fischler (2006) added that simulation based learning had great potential in education by allowing educators to act within virtual environments, immediately applying theory to realistic yet controlled settings. The use of simulations in many areas including equity-based teaching has recently increased (Chen et al., 2021; Littenberg-Tobias et al., 2021).

Studies that have focused on improving teaching practices through simulations include changes in equity mindsets and in self-reported equity-promoting practices (Littenberg-Tobias et al., 2021), more confidence in classroom skills, (Smith & Klumper, 2018), and teacher self-efficacy (Knezek & Christensen, 2009; Samuelsson et al., 2021). In addition, studies using simulations have found improvement in instructional teaching skills (Christensen et al., 2011; Lee & Ahn, 2021), classroom management (Christensen et al, 2007), motivation (Tyler-Wood et al., 2010, multicultural awareness literacy (Collum et al., 2019), and reduction of educator bias (Collum et al., 2020).

While not replacing classroom experiences, simulations are intended to extend and enhance opportunities to experience different types of students in a near real world environment. The key innovation of using simulation programs for preparing teachers is that it provides teachers and teacher trainees many learning trials with simulated students, thereby increasing confidence and competence, which in turn improves student learning. Repetition of many trials is important in changing habit complexes such as implicit bias (Malone, 2016).

Culturally responsive educators adopt the view that all students are capable of successes shown to be critical for student growth (Boser et al., 2014).

Culturally responsive teaching challenges educators to recognize that, rather than deficits, students bring strengths into the classroom that should be leveraged to make learning experiences more relevant and effective for students (Muniz, 2019). A simulated teaching environment allows for comparing self-reported bias indicators to objective measures produced by teaching within the simulator.

Three research questions focused on the teachers' use of a simulation tool, simSchool, guided this study.

1. To what extent can teaching in a simulated environment produce measurable changes regarding educator implicit bias with respect to visual characteristics (such as skin color and gender)?
2. To what extent can algorithm-based identification of – and prompted reflection on – educator biases in simulated teaching practices be decreased?
3. To what extent do simulation experiences impact participant measures related to teacher instructional self-efficacy, culturally awareness self-efficacy and educator bias related to teaching practices?

Methods

Participants

For the pilot year of a three-year project, twenty teachers were selected from the 47 who applied. Criteria that guided the selection process was representation from each of the three geographical areas of the state that were part of the school system, as well as at least two teachers from the same school, if possible. Each of the participants attended an introductory Zoom session to get started in simSchool with additional support from the team if needed. Of the 20 who participated, ten completed all components necessary for the study. Findings reported in this study are from the ten teachers who completed both pre and posttest survey data as well as all the required simulation modules.

Intervention

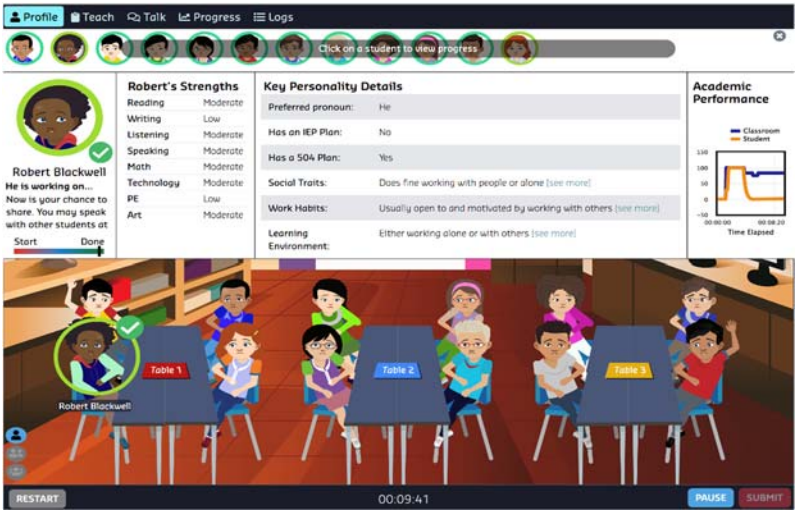
SimSchool is a dynamic, online classroom simulation program that allows preservice and inservice teachers the opportunity to practice teaching. SimSchool was designed to provide future and current teachers with a safe environment for experimenting and practicing techniques, especially methods of addressing different learning needs, and wide variations in academic and behavioral performance of students.

SimSchool promotes pedagogical expertise by re-creating the complexities

of classroom decisions through mathematical representations of how people learn and what teachers do when teaching. SimSchool's underlying artificial intelligence model includes research-based psychological, sensory and cognitive domains. The Five-Factor Model of psychology (McCrae & Costa, 1996) serves as the foundation of the student personality spectrum. This model includes the characteristics of extroversion, agreeableness, persistence, emotional stability, and intellectual openness. A simplified sensory model component with auditory, visual and kinesthetic perceptual preferences comprises the physical domain. Together the physical, emotional and academic factors were demonstrated to represent salient elements of classroom teaching and learning (Christensen et al., 2011; Gibson, 2007).

As shown in Figure 1, simSchool users have options to review detailed student profiles before or during any session. Through the "Teach" button, users select which students to assign activities, either as individuals, groups, or as a whole class. The simSchool user can also make different types of comments through the "Talk" button in which they can encourage, redirect or discipline students. The "Progress" button allows the user to see how each student is performing in multiple dimensions including academics and emotions. The "Logs" button allows the user to see how the class and each individual student performed for each action the user selected. These features provide a robust system that allows each user to see the overall performance in the simulator after it is complete. Users are able to reflect and make corrections prior to beginning another session within the module with the intention of improving their teaching performances.

Figure 1 - SimSchool Classroom Highlighting Student Profiles.



While refining their own best practices in this "flight simulator for teachers," simSchool participants are encouraged to interact with this cognitive model over several sessions spanning several weeks, with micro-teaching interactions lasting from 15 to 30 minutes. Each module focuses on a different aspect of teaching and ranges from classroom management to Pre-calculus. Prior to beginning the sessions, users review the student profiles that contain information on student strengths, preferences and academic performance so they can attempt to match instruction with learner needs. During the sessions, participants adapt their teaching to the diversity of students they encounter. At the end of each simulation session, participants receive graphical feedback displaying degree of success at promoting academic (learning) increase in the class overall, as well as feedback regarding the degree of suitability of the instructional activities selected for each individual simulated student in the class. This feedback can reveal aspects of a teacher's implicit biases. Figure 2 illustrates the complex capabilities of simSchool.

Experiences in the simulated teaching environment allow teachers to recognize and reflect on implicit biases they may have that impact teaching strategies related to diverse learners, revealing possible cognitive dissonance related to inconsistencies in teaching behaviors versus beliefs. Following the simulated teaching session, users are provided with detailed post-hoc analysis of teaching patterns disaggregated by race and gender. Following the reflective feedback, teachers begin a new simulated teaching session with the intention of adjusting their teaching strategies to address specific learner needs. Multiple iterations are provided with the intention that improvements in teaching strategies occur due to the ability to "teach" in a system in which student variables are held constant in that they respond the same way (within systems dynamics boundaries) each time a teaching action is introduced. Thus, simSchool provides a non-invasive platform for researching impacts of alternative teaching behaviors.

Instrumentation

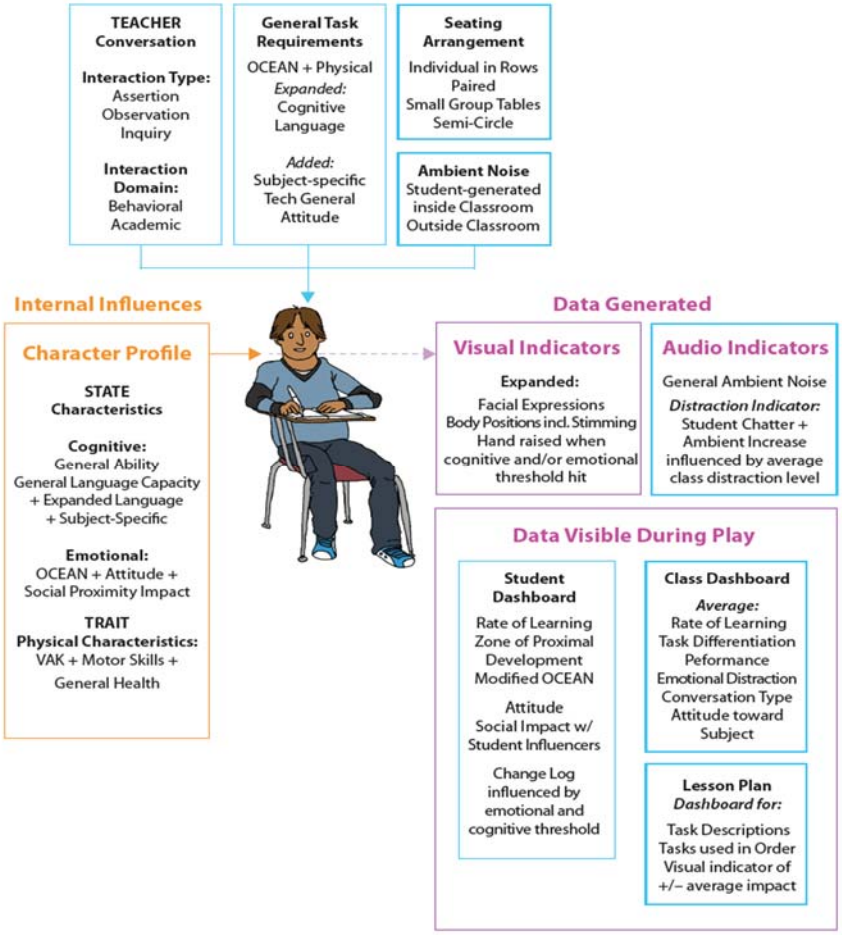
Data related to implicit bias were collected from three sources. First, the simSchool program gathers and retains the data that is used to give debriefing and feedback to the participating educators. A second source of data included demographic and self-report self-efficacy and culturally relevant teaching measures gathered from the participating teachers.

Three teacher measures were included in this study. User data from the simSchool program contained information for each session from each of the modules. In addition, teacher survey measures focused on self-efficacy, culturally responsive teaching, and self-awareness of bias were collected pre-

post within the simSchool program. These surveys included:

1. The *Teachers' Sense of Efficacy Scale* (TSES) (Tschannen-Moran & Hoy, 2001) measured self-efficacy related to three subscales: instructional strategies, classroom management, and student engagement.
2. The *Culturally Responsive Self-Efficacy Survey* (Siwatu, 2007) determined the level of competency in the skills and knowledge needed to engage in culturally responsive teaching that includes curriculum, assessment, classroom management and cultural enrichment.
3. Three scales from the *Educator Bias Inventory* (Collum et al., 2020) included: *Self-Awareness*, *Pedagogical environment*, and *Relationships with families and community* adapted from Chen et al. (2009).

Figure 2 - Model of Individual Learning Characteristics in SimSchool



Classroom teachers participated in one of two sets of modules depending on the grade level taught. The listing of the modules by grade level band is shown in Table 1.

Table 1 - Modules Completed by Classroom Teachers

Elementary teacher modules
Cultural Intelligence and Inclusion 2.0
ELE 3-5 Bullying and Bias the First Coconut Tree
ELE 3-5 Gender and Identity Supermom Saves the Day Why Can't Girls Be Superheros
Middle School Modules
MS 6-8 Gender and Identity: The Misfits
MS 6-8 History Empowering Learners to Change the World
MS 6-8 (Race, Ethnicity, Class, Immigration) A Tale of Two Schools

Figures 3 and 4 illustrate examples of graphical feedback and an observation report that participants received. Participants were required to view feedback prior to completing another session in the module.

Figure 3 - SimSchool Graphical Feedback Based on Interactions with Students

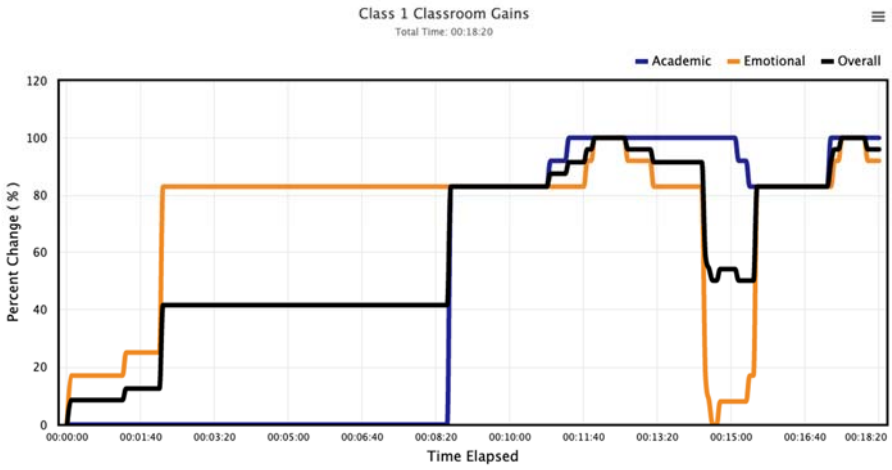


Figure 4 - SimSchool Observation Report Based on Participant Actions in the Simulated Classroom

	Description	Recommended Practice	N/A	Needs Attention	Satisfactory	Good
1	Regularly assesses individual and group performance.	Checks the class progress tab at a regular interval.			✓	
2	Uses information of differing student strengths and needs to further each learner's development.	Clicks on each student's profile and views their traits or progress at least once throughout the simulation.				✓
3	Designs, adapts, and delivers instructions to address each student's diverse learning strengths and needs and creates opportunities for students to demonstrate their learning in different ways.	User uses a variety of tasks during the simulation.				✓
4	Makes appropriate and timely provisions for individual students with particular learning differences and needs.	Assigns tasks in a way that maximizes students' performance (academic and behavioral).		✓		
5	Understands students with exceptional needs, including those associated with disabilities and giftedness, and knows how to use strategies and resources to address these needs.	User chooses appropriate strategies when students with accommodations are present.	✓			
6	Gives students adequate time to transition between instructional activities.	Selects the appropriate strategy 'give break', before assigning a new task.		✓		
7	Pacing maintains student involvement and engagement.	Changes task or makes a comment when students become distressed.				✓
8	Uses proximity control.	Walks by students who have been disruptive.				✓
9	Uses praise and encourages positive behavior	Makes friendly conversation or the 'give praise' strategy for students who have moved up a behavior band.				✓

Results

Results from self-report data

Data were collected both during the simulations and through pre-post surveys related to teacher efficacy and educator bias. As shown in Table 2, there were significant ($p < .05$) positive changes from pre to post for Efficacy for Instructional Strategies as well as Culturally Responsive Teaching Self-efficacy. Near to significance was the Educator Bias Inventory subscale of Pedagogical environment. Since the data set only included 10 teachers who completed pre-post assessments as well as all the modules, effect size becomes a meaningful indicator of gain because it is largely independent of whether or not the change observed (given small n) could be concluded to be rare by chance ($p < .05$). As shown in Table 2, the effect sizes were all educationally meaningful at .30 and above (Bialo & Sivin-Kachala, 1996). Eight individual items that were significant ($p < .05$) each produced a large effect size indicating

that there were significant improvements in adjusting lessons and the environment to support diverse learners.

Table 2 - Comparison of Pre and Post Teacher Means for Equity-Related Subscales

	Pretest			Post test			Signif.	ES
Subscale	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**(*p*)**	
Efficacy for Instructional Strategies	10	4.90	.49	10	5.26	.38	.016*	.93
Efficacy for Classroom Management	10	4.75	.66	10	5.14	.48	.078	.63
Efficacy for Student Engagement	10	4.63	.61	10	5.18	.51	.071	.65
Culturally Responsive Teaching Self-Efficacy Survey	10	4.80	.50	10	5.25	.39	.040*	.76
Educator Bias Inventory: Self Awareness	10	5.33	.40	10	5.40	.38	.279	.36
Educator Bias Inventory: Pedagogical Environment	10	5.14	.51	10	5.36	.39	.055	.70
Educator Bias Inventory: Relationship with families and community	10	4.45	1.03	10	4.87	.43	.203	.43

Note: * Significant at the $p = .05$ level. Cohen's (1988) effect size guidelines .2 = small, .5 = moderate, .8 = large.

Results from the Simulation Data

Data included objective performance statistics generated from the simSchool program. Teaching behaviors captured unobtrusively allowed computation of academic gains, emotional gains, and equity gains during teaching. The analyzed data included the gains for the first and last attempts in each of the modules. Paired *t*-tests showed a significant difference for the equity index for one of the modules ($p < .024$). Aggregated across teachers, equity gains by module ranged in magnitude from effect size = .22 to effect size = .87, the latter of which was individually significant at the $p < .05$ level and would be considered large according to guidelines by Cohen (1988). Most of the modules showed positive gains. Future research with larger sample sizes is anticipated to reconfirm magnitudes of reported effects while enhancing the prospects that additional modules will individually reach $p < .05$ levels of significance.

Summary and Discussion

Findings from this study included significant pre-post increases for self-efficacy related to culturally responsive teaching as well as instructional self-efficacy. In addition, all the pre-post scale measures were educationally meaningful with an effect size range from .36 to .93. Participating in modules that included feedback on teaching strategies indicated significant changes in the equity index that is based on multiple indicators of equity such as gender and skin color. These findings add credibility to the contention that a key innovation of using simulation programs for teacher professional development is that it provides current and future teachers with the opportunity to practice multiple times within a safe environment with simulated students, thereby increasing teacher confidence and competence, and which in turn will improve student learning. These findings set the stage for measuring the impact on student perceptions of learning and cultural engagement intended to support teachers in recognizing and ameliorating their own implicit biases. Limitations of this study include the small sample of teachers that completed each of the parts required to be full participants. While the small numbers still exhibited significant changes, additional studies are planned to include a larger number of participants.

Approximately 200,000 new teachers enter the field in the US each year, many underprepared for the complex and demanding role of classroom teacher (Atteberry et al., 2015). New teachers have reported that classroom management issues of student behaviors are the biggest source of stress in early teaching and likely contributes to high attrition (Aloe et al., 2014). Teacher preparation programs have struggled to ensure that all preservice teachers receive consistent experiences in field-based teaching (Ronfeldt, 2015). The main goal of practice-based teaching is to allow teacher candidates to apply educational coursework theories and techniques to a real classroom. However, assuring they have the highest quality experiences is a challenge. Simulation teaching experiences can provide opportunities to try and retry techniques and strategies prior to going into the classroom, to supplement and enhance the in-person field-based experiences.

4. Implications for Teacher Education

Given the impact of COVID-19 on preservice and inservice programs, simulated teaching environments are likely to continue to expand to meet the demands of teacher development programs. The experiences provided in the simulated teaching program help bridge the gap between theories and

classroom practice while providing scaffolded enhancement of teaching pedagogical knowledge and skills in academic, emotional and equitable domains.

In addition, simulated teaching experiences can provide preservice teachers with opportunities to encounter diverse students that they otherwise may never encounter in their field-based experiences. The recognized importance of socio-emotional stability for the long-term well-being of current teachers and future productive citizens of our society has spotlighted the urgency of research on programs that allow users and researchers to focus on mitigation of implicit bias. Innovative solutions offer the prospect of finding a timely contribution to a significant problem in schools.

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Description of Duties: Rhonda Christensen led the conceptualization, literature review and data analysis portions of the paper. Gerald Knezek assisted in the research design, delimiting focus for the paper, and in interpretation of findings. Both authors contributed to all drafts and manuscript revisions.

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Saggi e ricerche

Could Faculty Development Initiatives Like Workshops and Community of Practice Favour the Introduction of a Problem-based Approach in Higher Education? A Case Study

Antonella Lotti[*], Juliana Raffaghelli[°], Marina De Rossi[°], Lieta Marinelli[°]

Abstract

This article is dedicated to evaluating the impact of Faculty Development for the introduction of Problem Based Education in higher education. A bachelor's science degree program in Animal Care at the University of Padua has decided to introduce Problem Based Learning in an entire semester, as a first propaedeutic attempt at transforming the entire educational pathway. The transformation process was made possible by several elements: a Faculty Development program that allowed teachers to approach the PBL method and the creation of a Community of Practice (CoP) among the teachers. A preliminary evaluation of the impact of the Faculty Development program was conducted and the article describes some results: Faculty Development initiatives were effective, participants learned meaningfully, and enjoyed formal and in group training activities. Participants increased their motivation to teach according to the PBL approach for an entire semester. Participants were also motivated to create some Faculty Learning Communities (FLC), a special type of CoP in which Faculty members learn informally in group.

Key words: Higher education, Faculty Development, Problem Based Learning, Community of Practice

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Introduction

The Bologna Process aimed to create a European Higher Education Area through the achievement of quality assurance of study programs and student-centred education.

Twenty years later, there are delays in the adoption of a student-centred system.

Change is needed and the European University Association (EUA) recalls that student-centred education is an approach that replaces purely transmissive models with an outcome-based perspective, implemented through new approaches to teaching and learning, and curricula that are more clearly student-centred. It also suggests using teaching strategies such as problem-based learning or research-based learning (Gover et al., 2019).

Introducing change is very difficult in Higher Education institutions, which are bound by centuries of established tradition, where the lecturer is the one who transmits his knowledge via the ex-cathedra lecture.

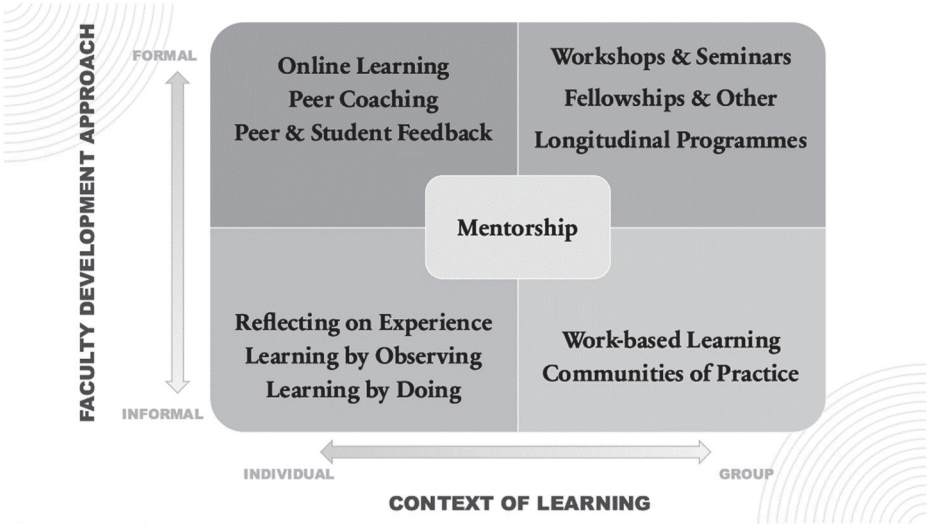
The literature shows that change can be introduced through Faculty Development (FD), i.e. through the development of university lecturers' teaching skills. Steinert, in two systematic reviews conducted 10 years apart, states that lecturers who participate in training activities introduce changes in their teaching (Steinert et al., 2006; Steinert et al., 2016). However, there is very little research dedicated to the role of Faculty Development and the adoption of Problem Based Learning in Higher Education.

FD is a focused term that covers a range of activities designed to improve student learning and to help faculty improve their competence as teachers (Eble & McKeachie, 1985).

There are numerous FD approaches, which can be summarized in five macro-areas, according to Yvonne Steinert's model (Steinert, 2014):

1. Informal individual approaches (reflecting on experiences, learning by observing, learning by doing);
2. Formal individual approaches (online learning, student feedback, peer coaching);
3. Informal group approaches (work-based learning, Communities of Practice or CoP);
4. Formal group approaches (workshops and courses, fellowships and others, longitudinal programs)
5. Mentoring.

Figure 1 - Approaches to FD (Steinert, 2014)



The most popular methods are face-to-face or online workshops, long courses also in the form of retreats, and CoPs.

The workshops are a usually brief, intensive educational program for a relatively small group of people in a given field that emphasises participation in problem solving efforts. Steiner states that "workshops are a common format for facilitating knowledge acquisition, attitudinal change, and skill development for learners at all levels of the educational continuum. Workshops rest on the premise that active participation and involvement are a prerequisite for learning and that "learner must be attentive and motivated for learning to occur" (Steinert, 2010).

The Community of Practice (CoP) is a concept coined by two anthropologists, Etienne Wenger and Jane Lave, in the early 1990s that defines groups of people, united by the same domain or field of interest, who come together to exchange practices, learn from each other, and develop a sense of belonging and community (Wenger, 1998). Within universities, CoP are also used in the version introduced by Michael Cox more than forty years ago and are characterized by the creation of a group of lecturers who commit to working together for a certain period (usually an academic year) to explore a topic of common interest or to design a new curriculum together, as in the case of the introduction of PBL (Cox, 2004).

EUA suggests introducing PBL which is both a teaching method and a curriculum organizer.

PBL is a teaching strategy that has its roots in the thought of John Dewey (1933) and that was first introduced in the university sphere in the early 1970s at McMaster University in Canada (Barrows & Tamblyn, 1980). This first experience allowed to discover the possibility of training future physicians by means of an interdisciplinary module curriculum in which students, divided into small groups and led by a tutor, learned in a self-directed way the basic and clinical disciplines, starting from the analysis of complex clinical situations of realistic patients (Albanese & Mitchell, 1993). As early as the 1970s and 1980s, degree courses organised in interdisciplinary modules began to spread, favouring PBL for the training of physicians in the Netherlands in Maastricht, in the USA and in Australia, and subsequently for the training of engineers, economists, health professions, psychologists and veterinarians on all continents.

The wide diffusion of PBL has caused great diversity in the adoption of the model and today we can count numerous reference models, which differ in the extent to which PBL is used as a teaching and learning method for the entire degree course, or simply as a teaching method within a discipline, in the size of the groups, in the style of the facilitators' conduct, in the process proposed to the students, and in the breadth of the problem (e.g. one problem per week, one problem per semester, one problem per day). Nevertheless, there is a common agreement in stating that PBL is characterised by the presence of the following key elements:

- the use of problems as the starting point of learning;
- students collaborate in small groups for part of the time;
- flexible guidance by the tutor;
- number of lectures is limited;
- learning is student-centred;
- ample time for independent study must be provided.

This complex advancement of PBL, and the difficult implementation of the approach makes it particularly challenging for academics without experience in active methods. Specific content creation to address the students' activity, the orchestration of the students around the problems, the interdisciplinary configuration of the problems, require careful attention not only in designing a PBL intervention, but also in training the teaching staff that will implement it (Lotti, 2018).

Context of the Intervention

The University of Padua is very attentive to the quality of teaching and promotes the introduction of student-centred education through the adoption of

non-transmissive teaching models and supporting innovative two-year projects proposed by its departments. It has established a strategic action aimed at introducing active teaching in Higher Education, namely "T4L" (https://www.unipd.it/teaching4learning). The PBL's skills-oriented professional development program is indeed closely related to the redesign and retraining of an entire "Animal Care" university course (https://www.unipd.it/en/educational-offer/first-cycle-degree/agricultural-sciences-and-veterinary-medicine). The Department of Comparative Biomedicine and Food Science in 2021 proposed a two-year project aimed, among other things, at conducting a one-semester trial to test the effectiveness of student-centred teaching, using PBL as a curriculum organiser and teaching strategy.

The aim of the project was to plan the semester in a sequence of interdisciplinary modules lasting three to five weeks in which the students, divided into small groups, would analyse and discuss an emblematic problem.

The Faculty members therefore had to change their role as lecturers passing on their knowledge in lectures and play four new roles: planners of interdisciplinary modules, creators of problems to propose to their students, facilitators of small learning groups and evaluators. The project included many FD activities: PBL retreats, workshops on assessment and the launch of a Faculty Learning Community, or Community of Practice (CoP).

The retreats took place in January and June 2022, and lasted two days each, the workshops took place both in-person and online and were 4 in number. The CoP was created after the first retreat and continues throughout the project.

By the end of the first retreat, the participants had decided to adopt the Dutch model of the Maastricht PBL, which involves one problem per week for each group of students. In addition, the participants planned the semester in 4 interdisciplinary modules dedicated to four professional competences of the animal care keeper: update, research, management and clinical (Table 1).

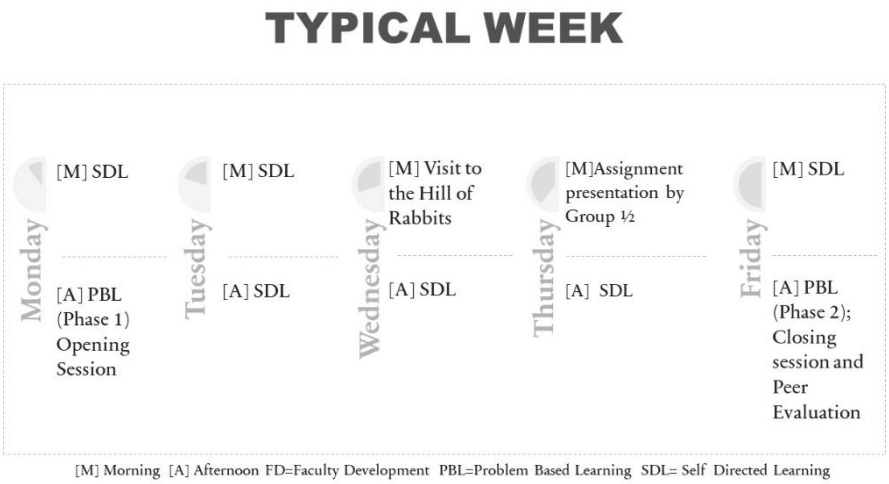
Table 1 - The semester organised in modules

Module/ Block	**Module Dr. Google vs Pubmed**	**Module Management**	**Module Clinical**	**Module Research**
Length	1 week	4 weeks	3 weeks	5 weeks

During the works of the Faculty Learning Community, the groups of teachers have planned the weeks according to the model of the typical week which foresees that each group opens the problem on Monday and closes it on Thursday. Between the first and second sessions, students can study in a self-

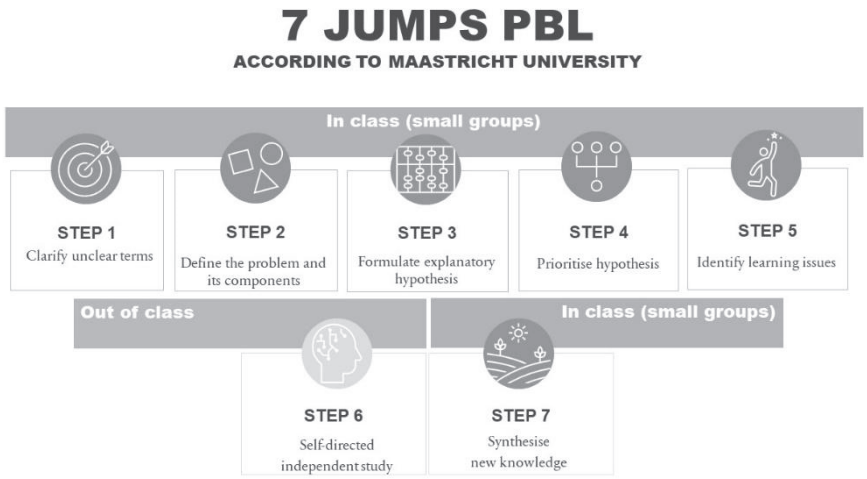
directed way and participate in field visits and practical activities in the laboratory (Fig. 2).

Figure 2 - A typical week



The problem is analysed and discussed according to the 7 jumps method of the PBL of Maastricht University (Fig. 3).

Figure 3 - Seven Jumps PBL at Maastricht University



Methodological Approach

The effectiveness of FD has been linked in the literature to projects that evolve over time and that are attributable to the logic of institutional transformation (Grover et al., 2016; Ranieri et al., 2019). The idea of separate or focused courses has been largely overcome by approaches based on peer-coaching, professional learning based on problem solving and in particular on CoP (Steinert, 2020) as it has been consolidated as an approach for adult learning in general (Schreurs et al., 2016). However, the evaluation of integrated and longitudinal interventions imposes several methodological difficulties (Charlier & Lambert, 2020). In particular, the adoption of mixed methods that can sometimes be intrusive for an extremely high and autonomous level of professionalism, such as that of the university teacher, implies an accurate planning of the moments and the tools aimed at the collection of essential data that certify the effectiveness and impact of training interventions. Nevertheless, the number of participants depends very much on the characteristics of the projects and levels of specialization in training. Sometimes, numbers that allow inferential statistical analysis are not reached. In fact, the literature reports integrated approaches that invite "complexity" (Fernandez & Audétat, 2019). In short, FD strategies that grasp moments, products, reflections, not in a definitive way but in relation to the objectives of institutional development. Leadership also appears to be a fundamental component when obtaining participation and therefore systematic data collection along the various phases of a program (Tsoh et al., 2019).

Having considered these assumptions, we carried out a study contextualized within the major T4L Padova University teaching innovation project and the Animal Care course. This context lays the foundations for a systematic and longitudinal analysis, of which this article reports the first phase. Such phase consisted in the direct training of the participants by expert teachers in PBL and the consequent first phase of informal professional learning aimed at deepening the design of PBL paths to be implemented in the immediately following semester.

Data collection

The research questions (RQ) that guided this preliminary work were:

RQ1 - Considering the different profiles of the participants, was the direct training intervention effective in terms of understanding the topic (PBL) and intention of applying it in class?

This question sought to explore the following subsidiary research questions:

- What are the profiles of the teachers involved in didactic innovation, and in experimenting with teaching in interdisciplinary modules that favour PBL as a teaching method?
- What attitude do these teachers who participate have towards teaching: are they more teacher-centred or more student-centred?
- Do the lecturers appreciate FD activities?
- Are formal and group-based FD activities effective in imparting knowledge and skills in innovative didactics, particularly on PBL?

RQ2 - After the direct and formal meetings, does the self-directed and group informal professional learning activity indicate basic forms of consolidation of a CoP aimed at improving PBL-mediated teaching?

This second question aimed at getting answers to the following subsidiary research questions:

- Do Faculty Development activities motivate teachers to undertake teaching experimentation involving redesigning their course and changing their teaching style?
- Do informal Faculty Development activities, such as Communities of Practice or Faculty Learning Communities, support teaching change?

Table 2 displays the variables explored and the tools used to answer these two questions.

Table 2 – Variables adopted in the study

RQ 1		
Variables	**Instruments**	**Levels and descriptors**
Participants' profiles: Gender, Experience in Teaching, Conceptions on Learning and Teaching	Test COLT (Conceptions On Learning And Teaching) (Jacobs et al., 2012), Italian standardized version (Rampoldi, 2021)	Female, Male, Other Years of teaching 0-2, 3-5, 6-10, 11-15, more than 15. The teacher conception of teaching, addressing three types of approaches: Active Learning conception, Traditional conception, Mixed conception *Self-reported measures, voluntary, anonymous*
Topics Knowledge and Understanding	Pre and Post-Test On PBL concepts	Test consisting of 10 questions relating to the topics of training delivered formally by expert teachers.(Grades, 1 to 10) *Objective measures, Voluntary, non-anonymous*

Perceived impact of the training on professional learning	Final Participants' Survey	Opinion of the teacher collected with Likert scale starting from direct questions related to the quality of the trainer, of the content, of the average time dedicated to the main activities and concepts on PBL.
Intention to use (apply the specific knowledge achieved to further professional practice)		Opinion of the teacher collected with Likert scale with respect to their intentions to apply the PBL and to socialize it with other colleagues. *Self-reported measures, voluntary, anonymous*

RQ 2		
Variables	**Instruments**	**Levels and Descriptors**
Participation in informal professional learning activities.	Three-month follow-up questionnaire after the formal training provision	Number of meetings as option between: 0-2, 3-5, more than 5
Type of activity developed among peers and perceived professional learning		Themes of the meetings, multiple answers possible: • Design supplementary PBL activities • Selection of evaluation methods and construction of assessment tools • Syllabus Design • Design problem situations for PBL sessions • Design of interdisciplinary training modules • The role of the PBL tutor and the facilitation of PBL groups.
Impact perceived from involvement in informal professional learning activities.		Agreement/Disagreement Likert Scale *Self-reported measures, voluntary, anonymous.*

Data Analysis

As regards the analysis of the data, descriptive techniques of mono- and bi- or multivariate statistics have been applied to all variables. The graphs have been created with the aim of analysing trends or phenomena of relevance that guide the inferential statistics and the discussion. The learning level was analysed by means of a non-parametric comparison test between two means (Wilcoxon). The relationship between the perceived impact and the intention of using the PBL or socialization was analysed with the non-parametric test of correlation between Spearman variables. The Kruskall-Wallis test was adopted as robust, non-parametric test to analyse multi-level variance. The inferential techniques are basic given the low number of cases in the sample and the

impossibility of connecting cases imposed by ethical limitations with respect to the identification of participants in the case of detecting sensitive information. It should be considered that the data collected, although adopted only for the evaluation of the program and aggregated, can be perceived by the teacher as an element of surveillance with an impact on the concept relating to his/her work performance and consequent career advancement.

Results

Impact of formal learning activities (RQ1)

Table 3 reports the descriptive statistics of the main characteristics regarding the 19 (nineteen) university teachers' taking part to the formal training on PBL. This table is integrated with two bivariate graphs (Fig. 4 and Fig. 5) which explore the relationship between the teaching approach (COLT) and the participants' characteristics in terms of gender and teaching experience.

Table 3 - Descriptive statistics of the participants' profiles

N	Variable	Stats/Values	Freq (% of Valid)	Valid	Missing
1	Gender	Female	11(57.9%)	19 (100%)	0 (0%)
		Male	8 (42.1%)		
2	Colt	Active Learning Approach (ALA)	8 (57.1%)	15 (79%)	4 (11%)
		Mixed Approach (MIXED)	5 (35.7%)		
		Traditional Approach (TRA)	2 (14.2%)		
3	Experience (yrs. of teaching)	11-15	1 (7.1%)	14 (73.7%)	5 (26.3%)
		6-10	5 (28.6%)		
		3-5	4 (35.7%)		
		0-2	4 (28.6%)		

As we can observe, the participants compose a balanced group in relation to gender and experience. Though there are more female participants (n = 11; 58%), the group of males is also consistent (n = 8; 42%). Only one teacher has 11-15 years of experience and there is a relevant group of teachers with middle-high experience (cumulative percentage of 6-10 and 3-5 reaches the 64.3%). There is also an interesting group of young teachers with less than 2 years (29%, 4 cases) of experience, who presumably might benefit with the interactive planning and interactions with more experienced teachers.

Figure 4 - Gender and Teaching Approach

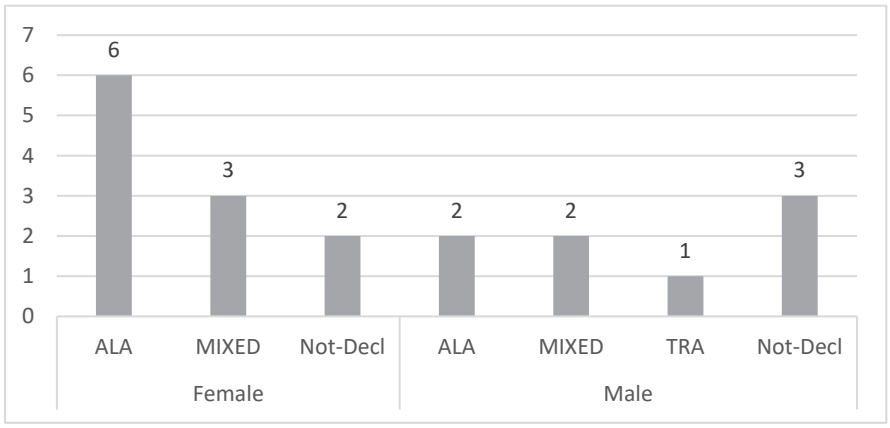
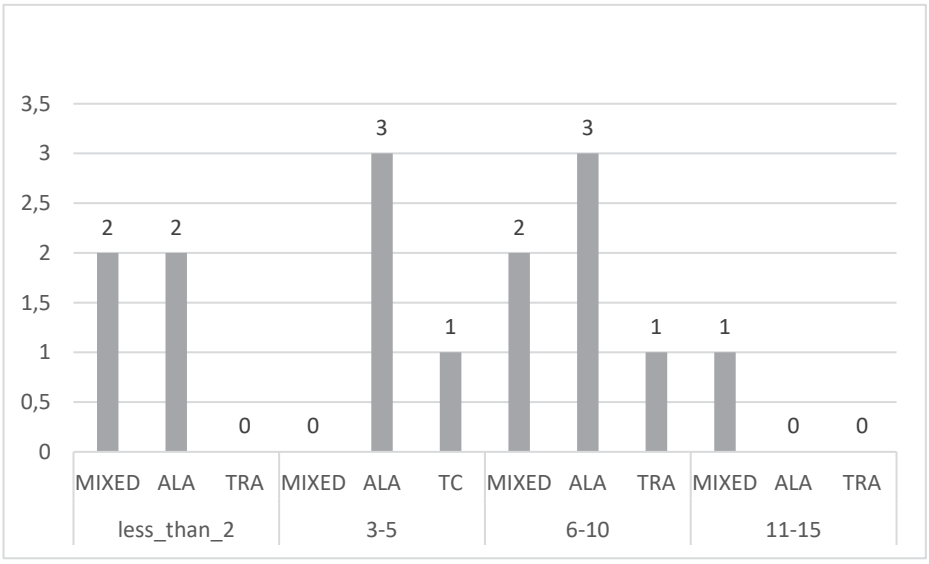


Figure 5 - Years of Teaching and Teaching Approach



As for the COLT we observe that most female participants prefer active learning methods (6/11 females and 6/19 teachers) whereas the teachers with a MIXED approach (namely, one that embraces a traditional perspective on teaching but has also a positive disposition towards active learning methods) are distributed between females and males (3 and 2 respectively).

The two approaches are equally distributed between the teachers with different levels of expertise. Nonetheless, most teachers' preferring an active learning approach are in the middle of their careers, (3 respondents ALA have 3-5 years of experience and 3 have 6-10).

Having analysed the group's main characteristics, let us consider the learning achievements in terms of knowledge and understanding of the PBL. Outcomes of the pre- and post-test design are reported in the Table 3. This exploration already displays a consistent difference, taking into consideration the different grades got between the pre- and the post-tests, and the close values of the mean and the median with rather low standard deviation and IQR. The skewness moves from a little orientation to the left (positive) distribution (i.e. lowest grades) to a more evident right (negative) distribution (i.e. highest grades). The distribution can be considered platykurtic (for both cases, > 3.0), which highlights that there are rarely or no outliers, with scores concentrated near the central tendency measures.

Nonetheless, given the little number of participants and the non-randomized composition of the group, robust statistics where preferred for testing the hypothesis of impact of the professional development intervention over participants learning.

Table 3 - Participants learning outcomes – Descriptive statistics

N=19	Mean	Std. Dev	Min	Q1	Median	Q3	Max	IQR
Pre-test	5.89	1.13	4.00	5.00	6.00	6.00	1.48	1.00
Post-test	8.77	1.17	7.00	8.00	9.00	10.00	1.48	2.00

(Table continues)

N=19	CV	Skewness	SE. Skewness	Kurtosis	N. Valid	% Valid
Pre-test	0.19	0.20	0.54	0.61	18.00	94.74
Post-test	0.13	-0.46	0.62	-1.38	13.00	68.42

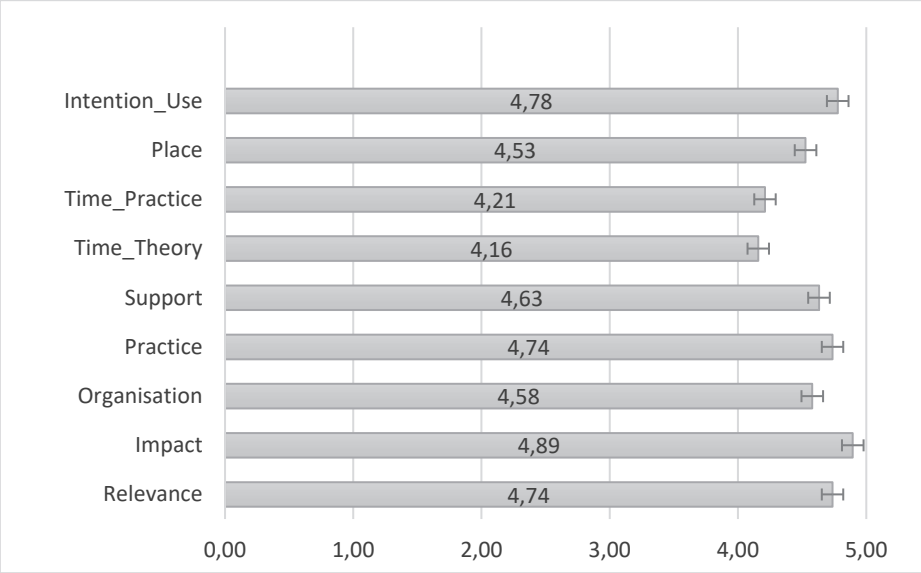
The results of Wilcoxon rank sum test with continuity correction were significant at the cutoff level of .05 (W = 10, p = 1.498e-05) showing that the participants improvement on knowing and understanding PBL was not due to the case but to a clear effect of the intervention.

The participants' perceptions about the course' effectiveness were also explored, considering the self-reported measures also as a good proxy of motivation and particularly of intention to adopt the knowledge achieved. The Figure 6 display such results.

We observed in this case that all the measured parameters were high in the scale 1-5. However, the Impact (mean score 4.89), the Relevance of the topic (4.74), the possibility of practicing some techniques relating to the PBL (4.74) and the intention to use the knowledge achieved (4.78) were consistently

evaluated with the highest scores. There were slightly fewer positive opinions around the time available to achieve the course contents, both for the practice and the theory of PBL.

Figure 6 – Participants opinion on the course



The Spearman Rank Correlation Rho test yielded a significant result at the cutoff value of .05 (S = 466.21, p = 0.02735) for the relationship between perceived workshop's impact and relevance and intention to use the knowledge achieved both in their classroom and their networks.

Prosecution of informal learning activities: basis for the Faculty Learning Community (RQ2)

The analysis of the teachers' self-reported indications about their informal learning activity yielded relevant results relating the main topics dealt with and the relationship between the number of encounters and the perceived learning outcomes.

The descriptive statistics reported in Table 4 point out at the relevant number of meetings carried out, demonstrating the continuity of the activities. Indeed, we observe that almost 50% of participants (n = 9; 47%) engaged in more than 5 successive meetings in order to deepen their approach to PBL, to be applied in class. There was a less but relevant group (n = 6; 32%) who took part in at

least 1 or 2 meetings. As for the topics, we observe that the group was splitted between a subgroup of 7 (37%) who decided to focus more on less topics, whereas the other subgroup decided to deal with almost all the topics relating planning a good PBL (n = 8; 42%). The most relevant topics are displayed in the Figure 4, where we can see that the teachers were concerned about a good definition of the PBL situations (15/19) and a careful planning of interdisciplinary modules (13/19). As expressed in the introduction, we infer theoretically that this continuity puts the basis for a CoP, aimed at providing support and circulate professional knowledge about PBL. The less relevant topic, though appearing in 7 (37%) of cases, was the Syllabus design.

Table 4 - Descriptive Statistics on Informal learning meetings

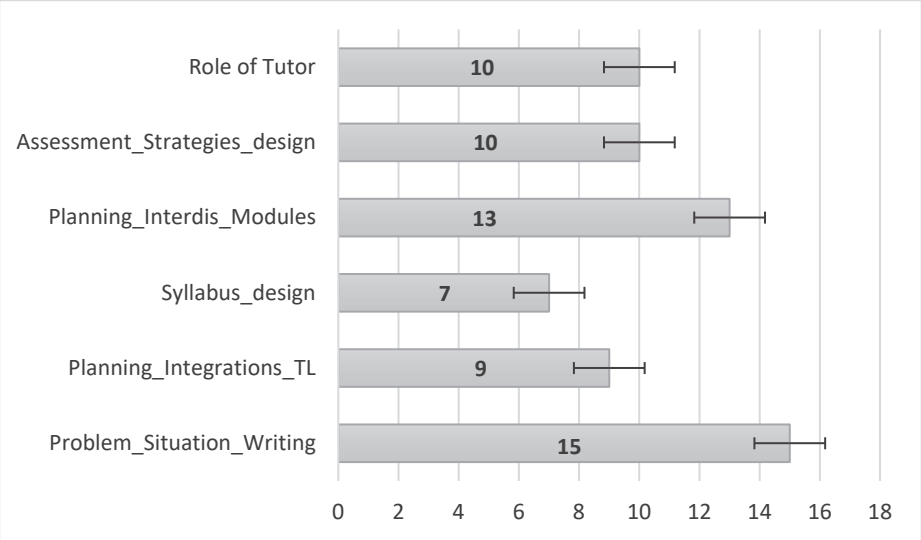
N	Variable	Descriptors	N	%	Valid	Missing
1	Freq IM	1-2	6	31.6%	19	0 (0%)
		3-5	4	21.0%	(100%)	
		More than 5	9	47.4%		
2	N Topics	2-3 topics	7	36.8%	19	0 (0%)
		4-5 topics	8	42.1%	(100%)	
		All topics	2	10.5%		
		One Topic	2	10.5%		
3	Further-Learning	Fully Agree	15	78.9%	19	0 (0%)
		Rather agree	4	21.0%	(100%)	
		Neither agree nor disagree	0	0.0%		
		Rather disagree	0	0.0%		
		Fully disagree	0	0.0%		
4	Participate Further FLCM (Participation in the Faculty Learning Community)	Fully agree	14	73.7%	19	0 (0%)
		Rather agree	4	21.0%	(100%)	
		Neither agree nor disagree	1	5.3%		
		Rather disagree	0	0.0%		
		Fully disagree	0	0.0%		
Total			19	100.0%	100%	0%

Most importantly, after this activity, about two thirds of the participants declared they had continued learning during and were willing to further participate in the informal meetings (79% and 74% "fully agree", respectively). The others "rather agreed" (n = 4; 21%) with both claims, and none of the participants disagreed (rather or fully) about the continuity of learning or participating in informal teachers' meetings.

In order to further explore the teachers' perception of informal learning we considered the influence of the number of topics the groups dealt with on the

perceived professional learning (further learning). The Kruskall-Wallis Test resulted significant at the cutoff level of .05 (chi-squared = 8.2286, df = 3, p = 0.042). The post-hoc analysis (Wilcoxon Rank sum test with continuity correction) yielded only one significant difference (W = 12, p-value = 0.02), relating the higher perceived learning by those engaging in 2-3 topics with regard to those engaging in 4-5 topics. A possible interpretation of this result is that the focus on a relevant number of topics (4-5) encompassed a higher cognitive effort, occasionally accompanied by discussion between the group's members. Such a situation could end up in a more intense perception of learning effort. No significant differences were found between those dealing with one and 4-5 topics or all the topics. Apparently, in these situations too little coverage or dispersion of the attention in all the topics is less effective in producing a feeling of professional learning. Interestingly, the number of meetings did not have impact on the perceived learning (the Kruskall-Wallis test did not yield significant results). Therefore, the frequency of the meetings was less important than the number to the topics to improve perceived learning. Nonetheless, these results have to be taken into consideration with a grain of salt, given the fact that the sample was very little.

Figure 7 - Topics analysed during the informal meetings



Discussion

The analysis of the results shows that the participants, mostly female in the

middle of their professional lives, enjoyed the training activities offered through a formal approach and emphasizing groupwork.

The data also reveal that the FD activities were effective in terms of learning about the PBL method as a teaching strategy and curriculum organizer.

These initial data are in line with systematic reviews on impact evaluation, which confirm the participants' positive reaction and appreciation of training events, which is a motivational response. Our results confirm through objective measures (pre-test and post-test comparisons) that also understanding and knowledge can be promoted through this type of interventions (Steinert et al., 2006; 2016).

One finding that seems important to us is that the Faculty Development activities motivated the lecturers to re-design their teaching and to participate in team-teaching, paying attention to interdisciplinary collaboration. Indeed, interdisciplinary approach in teaching and research is crucial when inviting the students to work on problems, not topics or content (Ranieri et al., 2019). As a result, the participants, furthered during the informal work group through the interdisciplinary perspectives, devoting particular attention to it after an initial design during the formal training.

Finally, the participation in Faculty Learning Communities, as specific type of CoP, allowed the lecturers to exchange experiences, plans, and learn from each other. In fact, the lecturers all participated in the numerous meetings aimed at planning interdisciplinary modules in detail, constructing problems, constructing assessment tests, and acting as facilitators of small learning groups.

These data are also in continuity with what was found in the literature: the adoption of an innovative interdisciplinary curriculum, with modules or educational blocks, requires teachers to adhere to a different teaching model, and this transformation is made possible by FD initiatives that offer the opportunity to acquire a different vision of higher education, to learn new teaching strategies and new assessment methods (Des Marchais, 2001; Snell, 2014).

Conclusions

Our research focuses the role of FD as part of the modernization of higher education. For this purpose, we purported that FD could be a relevant driver of change. We found this assumption to be supported by the research in the field, in a specific way: if the professional learning activity goes far beyond the simple course, towards a concatenation of strategies and interventions aimed at the situated development of university lecturers' teaching skills, then, the

effectiveness of FD is ensured. In this article, we focused particularly in two forms of interventions: formal group activities such as workshops and retreats, and FLCs, i.e. informal group meetings.

Therefore, our study attempted to display to which extent such a FD activity might be effective in introducing PBL in the context of a three-year degree course at the University of Padua. The activity focused one of the semesters as part of a strategic, longitudinal project that should have a prosecution in further semesters.

Preliminary data seem to indicate the importance of FD, in terms of teachers' satisfaction, orientation to apply their knowledge and engagement in further group activities to polish and improve their teaching projects.

The results are to be deemed preliminary, but they lay the foundations to follow up the case and produce a longitudinal study. Indeed, the lecturers will apply what has been planned in the first semester of the third year, and only in a few months' time will we be able to verify the impact of the training on the lecturers' behavior in the classroom and on the results, i.e. the students' performance.

The limitations of this work are the small number of subjects examined, 19 participants. However, the data is consistent with work found in the literature and encourages us to go further down the road of introducing change through formal and informal FD.

Acknowledgements: Although this article is the fruit of thoughtful work by the four authors together, Antonella Lotti wrote Introduction, Context, Discussion and Conclusion; Juliana Raffaghelli wrote Methodological Approach and Results; Marina De Rossi and Lieta Marinelli did the supervision and coordination.

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Saggi e ricerche

Innovative Practice in Initial Professional Studies for Czech Pre-School Teachers

Barbora Loudová Stralczynská[*], Eva Koželuhová[°]

Abstract

Over the last three decades, there has been an increase in university level education for pre-school teachers in the Czech Republic. The aim of the paper is to present part of the results of a research study comparing the Bachelor's degree programmes in pre-school pedagogy at ten of the country's universities. Conducted between 2020-2022, the research found that although the national minimum qualification for pre-school teachers remains at secondary vocational level, tertiary level qualifications are much more common among more recently qualified pre-teachers. The democratic transformation of the Czech education system during the last 30 years introduced many improvements such as innovation in the conception, structure, content and organisation of Bachelor's degree programmes. Especially in the last decade, these mainly relate to greater integration of teaching theory, didactics and practical training of students. In some universities these initiatives have also resulted in modularisation of courses and cooperation between lecturers from different subject disciplines and departments. This article presents examples from two Czech universities to illustrate how these new approaches were successfully implemented and resulted in positive feedback from students.

Keywords: Initial professional studies; pre-school teachers; innovative practice; university didactics; interdisciplinary approaches.

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Introduction

One of the key topics of contemporary pre-primary education is ensuring the highest quality as well as finding a way to ensure pedagogical and professional continuity for the transition to primary education (OECD, 2017a, 2017b; European Commission, 2019). In the Czech Republic, pre-primary education has undergone significant changes in the last three decades and one issue that has resulted in the biggest transformation is the awarding of academic degrees for pre-school teacher training (Janík, 2013; Dvořák et al., 2015; Opravilová & Uhlířová, 2017). There is not yet a national requirement for a degree level minimum qualification for a pre-school teacher, as the current minimum is still a higher vocational school with a focus on early childhood education (Syslová, 2017). Nevertheless, there is a major change taking place in the qualification levels of those working in pre-schools, as the number of teachers who have achieved an undergraduate degree in pre-school pedagogy is rising significantly (CSI, 2021). Especially in the age group of teachers between 26-35 years, undergraduate level qualifications prevail. A long-term goal is to raise the minimum level of qualification for Czech pre-school teachers to at least Bachelor's level to be comparable with teachers in other EU countries (Oberhuemer & Schreyer, 2018, European Commission, 2020). Currently, 29 education systems demand a Bachelor's level for teachers working in pre-primary education (ISCED 02), while four countries (France, Italy, Portugal and Iceland) require a Master's level. Only in eight European education systems (Austria, Czech Republic, Ireland, Malta, Latvia, Romania, Slovakia and Scotland), is the minimum qualification level lower and in the Czech Republic and Slovakia it is the lowest at ISCED level 3 (European Commission, 2020). Therefore, the following detailed comparison of curriculum content focuses only on Bachelor's degree programmes, as part of the ongoing professional debate in the Czech Republic is the question of introducing a compulsory Bachelor's degree for at least one teacher in a classroom or for a teacher working with five-year-old children who complete the compulsory pre-school year.

Study programmes in pre-school pedagogy at tertiary level have a relatively long tradition in the Czech Republic with the first courses existing before the Second World War and then briefly after 1946. Since 1970, pre-school pedagogy has been taught at Charles University in Prague and at Palacký University in Olomouc. Since the 1990s, undergraduate programmes in pre-school pedagogy have gradually become established in the Czech Republic (Opravilová & Uhlířová, 2021).

The Bachelor's degree in Teaching for Pre-schools is currently offered by ten universities in the Czech Republic; these are mainly university faculties of education and award 180 ECTS credits. A two-year follow-up Master's degree

awarding 120 ECTS credits is also offered at four pedagogical faculties however, they are accredited as non-teaching courses, serving to deepen theoretical preparation. The Master's courses are intended primarily for future managers in pre-school institutions, employees of the Czech School Inspectorate, counselling or educational institutions in the CPD system.

The concept of the Bachelor's degree programme is based on the child-centred model of pre-school education, respects the specific developmental aspects of the child's pre-school years and aims at an individualised pedagogical approach. It has a balanced composition of professional theoretical and practical subjects and pedagogical practices which reflect current research and the requirements of education policy by including new study subjects and practices related to the field of inclusive education, differentiation and individualised teaching (MSMT, 2001; 2020).

Bachelor's degree programmes for pre-school teachers at all faculties in the Czech Republic must meet the requirements of the Ministry of Education and stipulate the percentage, credit and hourly representation of each component (see Table 1). These programmes are intended to prepare students to work as teachers within the context of the FEP PE (MSMT, 2021) however, detailed statements of the objectives and contents of Bachelor's degree programmes are not stipulated by the state.

This has led to the development of very different study programmes in terms of their concept, structure and variability of educational content. In the last five years, educational programmes have been undergoing re-accreditation processes characterised by innovations that include efforts to integrate educational content, trans-didactic approaches and multidisciplinary cooperation within individual faculty departments participating in the preparation of pre-school teachers (Syslová, 2017; Wiegerová, 2015).

Between 2020 and 2022, the Faculty of Education at Charles University conducted comparative research on study programmes for pre-school teachers at Czech universities (Loudová Stralczynská et al., 2022). The aim of the article is to highlight some of the findings of this research which focus on innovation within the study programmes and to demonstrate specific examples of innovative approaches from selected faculties of education.

Methodology

The research draws on approaches from comparative pedagogy (Bray et al., 2007), using a qualitative research paradigm. Phillips' (2006) model of comparison was used for the qualitative content analysis (Kuckartz, 2018) of conceptual and curriculum documents within the wider research project

conducted between 2020-2022. Synchronic, functional, and diachronic perspectives were applied in the analysis so as to meet the contextual provision of comparison (Rabušicová & Záleská, 2016).

The aim of the paper is to provide answers to the following questions:

1. What is the current profile of undergraduate study programmes for pre-school teachers in terms of structure, objectives and curricula content at faculties of education in the Czech Republic?
2. What innovative practices can be identified in undergraduate study programmes for pre-school teachers at faculties of education in the Czech Republic?

In order to answer these research questions, a qualitative content analysis (according to Kuckartz, 2018) of study programmes for pre-school teachers offered in the Czech Republic was conducted. The research sample consisted of Bachelor's degree programmes in pre-school education at all 10 universities that prepare pre-school teachers in the Czech Republic. The analysis focused on the comparison of these study programmes in terms of four main areas – structure, objectives, contents and innovative practices – as no comparable comparative research has been carried out in the Czech Republic.

The system of categories for the analysis of pre-school pedagogy study programmes at individual universities was constructed on the basis of theory and data from the pre-research phase (2019-2020). Deductively, the main categories were determined within the four main areas (Table 1) and in the following more detailed analysis, sub-codes were inductively created.

Table 1 - Analytical categories induced in qualitative content analysis

Categories	Description of categories
Structure	Formal aspects of the study program (modularisation, organisation of practical training, common basis of pedagogical-psychological subjects, permeability with other study programmes etc.), study organization, the number and types of compulsory, compulsory elective and elective courses
Objectives	Educational objectives and their anchoring in graduate profiles or analogous parts of study programmes. The thematic focus and breadth of the individual modules and courses.
Contents	The inclusion of current topics and approaches and their compliance with current findings in the field of preschool education, scope of direct teaching, number of credits for individual components and disciplines, the scope and focus of disciplinary and didactic courses
Innovative practices	Innovative forms of teaching within study programmes (e.g. interdisciplinary approach to teaching students, modularization, innovative ways of linking theoretical, didactic and practical courses). Innovative forms of implementation of pedagogical practice.

Thus, methodologically, a form of deductive-inductive categorical system creation was used within the seven-stage model of content structuring analysis (Inhaltlich strukturierende Inhaltsanalyse) according to Kuckartz (2018, p. 100). In relation to research question 1, the qualitative content analysis focused on examining the formal aspects of the study programmes, i.e. formal analysis (Formale qualitative Inhaltsanalyse) according to Schreier (2014). The categories monitored were, for example, the structure of the study in terms of the number and types of compulsory, compulsory elective and elective courses, the formal division of the study, the forms of the integration of practical teaching within the programmes, etc. This initial analysis (Kuckartz, 2018) allowed a thorough introduction and contextualisation of the individual programmes across the full breadth of their variability in the Czech Republic. The follow-up content structuring analysis (Schreier, 2012; 2014) targeted research question 1 in terms of analysing curriculum objectives and content, and research question 2 in looking at innovation in the degree programmes included in the comparison. The categories monitored were, for example, the thematic focus and breadth of the individual modules and courses, the inclusion of current topics and approaches in the objectives and content, innovative concepts of educational content, innovative forms of implementation of pedagogical practice and its connection with theoretically oriented courses, etc. The qualitative content analysis was performed manually using comparison tables. This research has generated quite a large amount of data; for the purpose of this article only some of them have been selected. As the article is dedicated to an issue of the journal focusing on innovation, we have selected two examples of innovative practice that illustrate partial outcomes of the analysis and are also examples related to research question 2. These examples come from the authors' own pedagogical practice.

Results

Structure, Objectives and Curricula Contents

All faculties of education use a study structure that integrates theory with practical teaching experience in schools. Most faculties allow students to take courses in pedagogical practice in all or most semesters, which apply theoretical knowledge with practical teaching experience. The faculties specifically emphasise the educational objectives, content and structure of the courses to reflect the professional focus of the individual departments, and the underlying concept of the study programmes. Each study programme is accredited partly

as an academic programme and in part as a professionally orientated programme.

The study programmes emphasise the personal and professional development of students and prepare them for an inclusive approach to working with a mixed age group of pre-school children. Students are prepared in basic methodological competences which they use in the preparation of their Bachelor's thesis and when conducting action research for improving their pedagogical practice. The thematic focus of the courses, their credit rating and the proportions of the individual components within the study programme can be within the following ranges (Table 2).

Table 2 - National framework defining the scope of individual components of professional training in the B.A. study programme for pre-school teachers in the Czech Republic

Content	%	Credits	Hours
Introduction to teaching: pedagogical-psychological preparation and special-pedagogical preparation, e.g. general pedagogy, psychology and didactics, history, school pedagogy, educational psychology, developmental psychology, inclusive didactics, methodology, basic medical knowledge, a foreign language and ICT in relation to teaching for pre-schools, or university foundation.	23-30	41-54	1230-1620
Subject area with didactics: especially Czech language and literature, communication, mathematics, nature and environmental education, physical education, music education, art education, drama education, dance education, etc.	45-50	81-90	2430-2700
Practice: guided and reflective practice (listening, continuous and coherent)	10-15	18-27	540-810
Preparation of the final thesis	5-10	9-18	270-540

Source: MSMT, 2017.

Until recently, the study programme for pre-school teachers had a very diverse range of courses, which was characterised by a high number of courses where the continuity of the sub-courses was not always consistent and there were unintended thematic overlaps. The arrangement of courses in the current study programmes have addressed this long-standing problem. Newly accredited programmes (e.g. in Prague or Brno) are based upon modularisation of courses and greater integration of educational content, disciplinary didactics and cooperation of participating teachers with different disciplinary backgrounds. Nevertheless, the research identified that most study programmes at faculties of education in the Czech Republic still contain a high number of courses, which may pose a risk to the internal coherence of educational content. In comparison with the concept of Bachelor's degree programmes in early

childhood education in Western European countries, there is an opportunity for further development in this area. An overview of individual Bachelor's programmes illustrating the number of compulsory, elective and optional courses at each. university is presented in (Table 3).

Table 3 - Overview of the number of compulsory, compulsory-elective and optional courses at individual institutions providing B.A. study programs for pre-school teachers in the Czech Republic

University	Number of courses			Total number of courses in the study programme
	Compulsory subjects	Compulsory electives	Optional subjects	
Brno Masaryk University	64	7	7	78
České Budějovice University of South Bohemia in České Budějovice	59	20	11	90
Hradec Kralove University of Hradec Kralove	71	Not offered	10 (8 music education subjects; 2 art education subjects)	81
Liberec Technical University of Liberec	61	37	Not offered	98
Pilsen University of West Bohemia in Pilsen	59	14	20	93
Prague Charles University	41	4	17	62
Olomouc Palacký University in Olomouc	37	6	36	79
Ostrava University of Ostrava	51	14	Not offered	65
Ústí nad Labem Jan Evangelista Purkyně University in Ústí nad Labem	76	18	29	123
Zlín Tomas Bata University in Zlín	41	26	Not offered	67

Source: Author's own research based upon data provided by the faculties.

As Table 3 shows, the ten study programmes differ from each other, especially in the optional components. The variety of options available to applicants when choosing their study programme is a positive feature as a certain degree of programme diversity allows for the choice of studies that correspond to the applicant's deeper professional interests. Elective subjects are a consequence of either the legal requirements or the focus of the particular study programme. The number of credits for compulsory courses together with the minimum number of credits for elective courses is usually around 90% of the total number of credits.

Innovative Practice

The modularisation and internal coherence of theoretical content combined with the practical training of students is one example of innovative practice at pedagogical faculties in the Czech Republic. The modularisation and integration of theoretical content is applied to different extents, but within professional discourse between faculties and their teaching staff within the Czech Republic, this is considered to be an opportunity for further development of undergraduate study programmes. The following are current examples of good practice and innovation in terms of implementing a transdisciplinary approach and integration of didactic theory with practical training.

Integration of Disciplines and Didactics – Experience from the Faculty of Education, Charles University, Department of Pre-Primary and Primary Education

Literacy Development Course.

Literacy and its development is one of the important areas of all levels of education (Fellowes & Oakley, 2010; NICHD, 2000; Shanahan, 2005; Tompkins, 2006) and includes an attitudinal component demonstrating that reading is perceived as valuable and the individual reads because he or she wants to. Therefore, high demands are placed on teachers in terms of literacy development. This is all the more so at the level of pre-primary education, where the foundations are laid for the future development of all the components of literacy – i.e. the attitude towards reading, comprehension and the ability to read and write.

In the preparation of future pre-school teachers at the Faculty of Education of Charles University, the aim was to cover the whole area through 6 different

courses, which students had to spread over three years of study. These were courses entitled Literature for Children I and II, Culture of Spoken Speech, Czech Language in Pre-school Education, Literature for Children with Didactics, and Developing Reading Literacy. These courses had a time allocation of 1 to 2 hours per week and their outcomes were very varied and inconsistent.

In practice, the educational content of individual courses overlapped, and students encountered some content repeatedly on different courses, while other areas remained uncovered in the belief that students had already been introduced to it in a previous course. Another shortcoming appeared to be the fragmentation of the content, where students missed how the areas of literature, language development and the field of pre-school didactics itself were connected. For this reason, a radical change in the preparation of future pre-school teachers in the development of pre-literacy and literacy was undertaken.

The cooperation of teachers from three different faculty departments was necessary – the Department of Czech Language, the Department of Czech Literature and the Department of Pre-Primary and Primary Education. Teachers of these departments thought together how to organise and connect the educational content in a logical way so that students could get acquainted with the area of pre-literacy in its complexity and full breadth. A new course was therefore designed, which students attend for two semesters. The course has been given the title Language, Communication and Literacy Development to emphasise the interconnectedness of the different components. Thus, from the very beginning, students ae aware that without the development of language and communication skills and knowledge of children's literature, it is not possible to develop reading pre-literacy.

For the 2021/22 academic year, the new course is four hours per week in the winter semester and two hours per week in the summer semester. The course involves 4 teachers from three different departments who build on each other and each focuses on their area of specialisation. They address topics such as the definition of literacy and pre-literacy, the development of productive and receptive language competence in the pre-school child, the basics of communication theory with respect to the needs of pre-school children, the basics of rhetoric with respect to the needs of pre-school children, and the development of cultivated teacher expression. This is followed by an introduction to and mastery of constructivist teaching methods appropriate for pre-school children. These include the three-phase model of learning and reading strategies with an emphasis on the development of listening comprehension. Undergraduate students are introduced to literary types and genres and characteristics of literary works, as well as criteria for selecting a quality literary text. They learn to navigate current book offerings, are

introduced to campaigns promoting children's reading, and also learn to work with their families. At the end of the course, they learn about the development of children's writing and methods for teaching writing later on in primary school. The course also includes media education for pre-school children.

The course concludes with an exam during which students demonstrate knowledge and skills in the entire field. The content of the exam has been discussed at length by the teachers, who have been looking for a way to verify the competences acquired by the students in the easiest and yet high-quality way. In the end, they agreed on a practical outcome and a subsequent discussion with the student. The students have to develop an educational plan for a class of pre-school children for one week. Within the weekly unit, they work with a children's book of their choice and pursue objectives from all areas of literacy development – developing speech and communication, preparing for future reading and writing, developing children's comprehension and relationships with reading. Students are given set assessment criteria and their work is assessed and commented on by two tutors and together they then meet with the student and the student talks about their work in consultation with the tutors, before responding to questions. Course tutors provide extensive formative feedback on each students' work. The students themselves rate the opportunity to learn more about the issues in the context of real-life practice in pre-schools as the biggest advantage of this innovative approach. This is evidenced, for example, by a statement from a student evaluation: *I would rate this subject as the best subject of this semester. I really have to say that he gave me a lot of new information and perspectives on how it is possible to work with children and with children's literature*. By linking the theoretical language and literature subjects with the didactics of pre-school teaching, students can more easily apply them in practice when designing educational plans and activities. In addition, the course is linked to teaching practice, allowing students to gain practical experience in a pre-school and to test their knowledge and skills in a real-life situation. The student commented: *It was great to try out practical things as part of the tasks, which are fully usable in subsequent practice and therefore make a lot of sense*. Student evaluations show that the changes made have been positively received. In particular, the diversity in the lecturers' perspectives on the subject is appreciated, which students say provides them with an interesting and comprehensive overview. In the teaching evaluations, it was repeatedly stated that the students appreciated *the change of teachers, each of them gave us something different and it was inspiring*. Although the course content puts high demands on students, the decision to create one comprehensive course based on the close cooperation of experts from several fields proved to be a step in the right direction.

Innovative Organisational and Methodological Approach – Experience from the Faculty of Education, University of West Bohemia in Pilsen, Department of Education

Teaching Practice Component

When preparing students for teaching, it is important that the qualified teacher is seen as a reflective practitioner given the high demands placed on him or her by the profession (Janík & Slavík, 2011; Švec et al., 2016). Therefore, there is a need to develop the ability for self-reflection during undergraduate study programmes. In the Czech Republic, the amount of teaching practice is limited by the methodological guidelines of the Ministry of Education (see Table 1). This amount is not a high proportion of the study programme and so it is necessary to use these practices effectively both in terms of quantity and especially quality.

Teaching practices are distributed evenly throughout the study programme, while gradually increasing in difficulty and length. In the initial practice, students observe education in pre-schools and focus on specific aspects of the educational process and this is later followed by a practice where students carry out their own teaching activities. The final teaching practice lasts 4 weeks when the student is required to teach and manage a pre-school class independently. This is all under the guidance of a mentor who accompanies the student with support for their work in cooperation with university lecturers who are familiar with the structure of the study programme, and are aware of the any changes within current trends in educational trends. Support for students on teaching practice is often in the form of interviews and discussions with pre-school teachers and subject specialists from the university.

In addition, colleagues from the Department of Education, the Department of Music Education, the Department of Art Culture, the Department of Mathematics, Physics and Technical Education and the Department of Computing and Didactic Technology are involved. Lecturers from different didactic disciplines have also been introduced to the content and objectives of the teaching practices and they often spend one day during the teaching practice with the student in their pre-school. Together with the student and the practice mentor, they reflect on the student's outcomes and look for ways to help the student develop professionally and use their theoretical knowledge in practice. As a result of this joint reflection, the student gains professional insight into their teaching practice, has the opportunity to review their own work and improve their own mentoring skills. The teacher gains a realistic picture of contemporary pre-primary education and the possibility of using their knowledge and skills to influence the quality and design of study programmes

for pre-school teachers. This model has been in operation for several years and is positively evaluated by teachers and students who particularly appreciate the effect of practice helping to inform the theoretical subjects of study programmes to reflect the needs of practice and the different ways that the pre-school child learns.

Discussion and Conclusions

Czech pre-primary education has undergone a process of transformation since the significant changes in society after 1989. The White Paper (MSMT, 2001, p. 45) set out a number of areas to be pursued in national educational development that are still valid and relevant today; some of these focussed on the modernisation of initial professional studies. Accordingly, there have been many innovations in curricula of the Bachelor study programmes for pre-school teachers during the last two decades. These changes are a response to a new concept of the child and the curriculum for pre-primary education and have sought to link these more closely to the undergraduate degree programmes preparing pre-school teachers. However, in comparison to other European countries where pre-school teachers require a university level qualification as a minimum (e.g. Finland, Switzerland or Sweden), the preparation of pre-school teachers needs to be further developed.

The quality of higher education programmes preparing pre-school teachers is closely monitored as part of the accreditation process and the requirements for teacher education are becoming more universalised across faculties. General trends such as linking theory and practical training, an emphasis on reflection upon pedagogical practice, inclusive education, formative assessment, and gaining experience in working with other teachers have been emphasised in newly accredited study programmes and are being applied in practice. One of the steps that will also lead to the promotion of quality is the strengthening of cooperation between faculties of education and joint work on the transformation of study programmes, which was signed in a memorandum by the deans of the faculties in September 2021. The qualitative development of pre-service education is a focus of the Education 2030+ Strategy (MSMT, 2020) which identifies the current problems within pre-service and in-service teacher education in the Czech Republic.

The provision of high-quality, theoretically informed and practice-related studies for pre-school teachers is the basis for the Czech education system to ensure quality education for all young children. The professionalisation of teachers is based in the relationship between academic knowledge and practical experience. Therefore, current efforts to innovate at individual faculties of

education in the Czech Republic continue to be focussed on the balance between professional orientation, theoretical and practical training, the focus on disciplines and the integrated concept of undergraduate study programmes.

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Saggi e ricerche

Università, Imprese e Soggetti Intermediari nei Processi di Innovazione Didattica nelle Scuole di Dottorato. Uno Studio di Caso Multiplo

Universities, Companies and Intermediaries in Teaching Innovation Processes in Doctoral Schools. A Multiple Case Study

Massimo Marcuccio, Vanessa Lo Turco*

Riassunto

Nell'ambito del dottorato di ricerca in Italia, negli ultimi vent'anni si registra un incremento degli iscritti così come dei dottori di ricerca inseritisi nel mondo del lavoro. Tuttavia, confrontando i dati nazionali con quelli internazionali, la percentuale dei dottori di ricerca occupati risulta inferiore in relazione al totale della forza lavoro. Inoltre, molti dei dottori di ricerca ritengono di non utilizzare nel loro lavoro le competenze sviluppate durante il dottorato mentre altri trovano migliori opportunità di lavoro all'estero. Questa situazione problematica sembra trovare una possibile soluzione nell'introduzione di curricula innovativi nei dottorati. Il contributo presenta gli esiti di uno studio di caso multiplo realizzato nel 2021 relativo a un percorso innovativo di educazione non formale sui temi dell'Open innovation promosso da un soggetto intermediario dell'Emilia-Romagna e rivolto ad aziende e dottorandi degli atenei emiliano-romagnoli. L'impianto della ricerca empirica è stato messo a punto a partire da una cornice teorica che ha integrato tre diversi modelli: la Comunità di Pratica, l'apprendimento basato sulla sfida e l'hackathon. L'obiettivo principale è stato quello di descrivere la sostenibilità, l'efficienza e l'efficacia del percorso innovativo. Sono stati coinvolti 14 dottorandi, 8 rappresentanti di quattro imprese, 4 referenti di un soggetto intermediario e 4 consulenti aziendali. I dati sono stati rilevati attraverso l'analisi di documenti, interviste e questionari. Dai principali esiti emerge che il percorso indagato risulta sostenibile, sebbene richieda alcuni

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adattamenti per migliorarne l'efficienza, e in grado di favorire la costituzione di comunità di pratica capaci di promuovere apprendimenti.

Parole chiave*:* dottorato di ricerca; didattica innovativa; comunità di pratica; innovazione aperta; soggetti intermediari.

Abstract

In the field of doctoral studies in Italy, there has been an increase in the number of PhDs enrolled and in the number of PhDs entering the labour force over the last twenty years. However, comparing national data with international ones, the percentage of employed PhDs is lower concerning the total workforce. Moreover, many PhDs feel they do not use the skills developed during their PhD while others find better job opportunities abroad. This problematic situation finds a possible solution in the introduction of innovative curricula in PhDs. The contribution presents the outcomes of a multiple case study carried out in 2021 on an innovative non-formal education course on Open Innovation issues promoted by an intermediary organisation in Emilia-Romagna and addressed to companies and PhD students at the universities in Emilia-Romagna. The empirical research framework was developed from a theoretical framework that integrated three different models: the Community of Practice, challenge-based learning and the hackathon. The main objective was to describe the innovative curriculum's sustainability, efficiency and effectiveness. Fourteen doctoral students, eight representatives of four companies, four representatives of an intermediary and four business consultants were involved. Data were collected through the analysis of documents, interviews and questionnaires. From the main findings, it emerges that the pathway investigated is sustainable, although it requires some adjustments to improve its efficiency and can foster the establishment of communities of practice that promote learning.

Keywords*:* PhD; innovative teaching; community of practice; open innovation; intermediary subjects; companies.

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La didattica innovativa all'università e nelle scuole di dottorato

Nel 2022 è stato attivato il XXXVIII ciclo del dottorato di ricerca in Italia: un percorso avviato nel 1980 con il Decreto Presidente Repubblica 11 luglio

1980, n. 382 Riordinamento della docenza universitaria, relativa fascia di formazione nonché sperimentazione organizzativa e didattica (Capo II - Dottorato di ricerca). Da quella data, il dottorato di ricerca è passato attraverso tutte le trasformazioni che il sistema universitario ha affrontato in questi anni. Dall'introduzione dell'autonomia didattica, scientifica, organizzativa, finanziaria e contabile del sistema universitario che consentirà di dare origine a molteplici strutture organizzative tra cui i dottorati di ricerca (Legge 9 maggio n. 168/1989); sino alla più recente Legge 30 dicembre 2010, n. 240, che, tra l'altro, istituisce l'accreditamento nazionale dei corsi di dottorato di ricerca da parte del Ministero sulla base dei pareri emessi dall'Agenzia Nazionale di Valutazione del Sistema Universitario e della Ricerca (ANVUR).

Tale processo è avvenuto all'interno di un contesto istituzionale europeo che, a seguito del Processo di Bologna, trova nel Council for Doctoral Education una delle più autorevoli istituzioni tesa a promuovere lo sviluppo internazionale dell'«educazione dottorale» (Coccia, 2013).

In questa cornice – qui solo delineata brevemente – i numeri delle iscrizioni e dei livelli di occupazione dei dottori di ricerca rendono possibile affermare che la "storia" del dottorato di ricerca in Italia sia complessivamente una storia di "successo". Si è assistito, infatti, a un incremento degli iscritti dall'inizio del nuovo secolo: dai 21128 iscritti dell'anno 2000 si è passati ai 32187 del 2020 (http://ustat.miur.it/)[1] . In egual modo sono aumentati i dottori di ricerca che riescono a inserirsi nel mondo del lavoro. A sei anni dal conseguimento del dottorato, nel 2018:

> lavora il 93,8% dei dottori di ricerca, è in cerca di un lavoro il 4,6% mentre non lavora e non cerca lavoro l'1,6%. Anche a quattro anni dal conseguimento del titolo lavora il 93,8%, mentre cerca un lavoro il 5% e non lavora e non cerca l'1,3%. Rispetto all'edizione precedente dell'indagine, condotta nel 2014 sulle coorti dei dottori di ricerca del 2008 e 2010, il tasso di occupazione a sei anni è sostanzialmente stabile mentre migliora di 2,3 punti percentuali quello a quattro anni (Istat, 2018).

Il fenomeno, tuttavia, presenta alcuni aspetti critici. Confrontando i dati nazionali con quelli di altri paesi europei ed extraeuropei, emerge come la percentuale dei dottori di ricerca occupati risulti nettamente inferiore in relazione al totale della forza lavoro. Inoltre, una «parte consistente» dei dottori di ricerca ritiene di non stare utilizzando sul luogo di lavoro le competenze sviluppate

[1] Rostan (2014) propone una lettura critica di questo dato affermando che, da un lato, i dottorati sono visti dagli studenti come «aree di parcheggio» mentre da parte dei docenti come occasione per aumentare il «prestigio» personale così come la valutazione e la distribuzione delle risorse a livello organizzativo.

durante il percorso di dottorato mentre un'altra parte trova migliori opportunità di lavoro all'estero, indicatore di una elevata qualità della loro preparazione (Archibugi et al., 2021; Ballarino et al., 2021)[2] . Tali dati sembrano far emergere una situazione problematica circa la relazione tra mondo del lavoro italiano – imprese private, pubbliche amministrazioni ed enti del terzo settore – e caratteristiche e potenzialità dei dottori di ricerca.

Da alcune parti viene avanzata l'ipotesi che una possibile soluzione possa trovarsi, da un lato, nella rivisitazione dei curricula dei dottorati (CNR, 2021; Rostan, 2014), da intendersi nell'accezione più ampia che comprende non solo i contenuti ma anche le strategie formative e le soluzioni organizzative che le supportano; dall'altro, nell'avvio di un cambiamento di mentalità degli imprenditori che intendono assumere dottori di ricerca.

L'istituzione dei dottorati industriali – così come di altre formule – può a tutti gli effetti rientrare tra le soluzioni che si collocano in questa linea (CNR, 2021). Ciò in ragione del fatto che

> i corsi di dottorato sono sempre più chiamati a rispondere a finalità diverse: formazione alla ricerca e alla carriera accademiche, formazione alla ricerca non accademica, formazione alle professioni altamente qualificate. Ciascuna di queste finalità comporta conseguenze diverse in termini di contenuti e organizzazione dei corsi di dottorato, status degli studenti di dottorato, relazioni con gli attori esterni alle università (Rostan, 2014, p. 69).

A tale proposito, focalizzando l'attenzione sulla rivisitazione dei curricula, De Toni (2021) sottolinea come un fenomeno emergente nel mondo delle imprese è quello del modello organizzativo dell'Open Innovation (OI)[3] il cui aspetto fondamentale è quello di far «evolvere il binomio "ricerca & sviluppo" a quello di "connessione e sviluppo"» spostando «il baricentro dell'attenzione all'interno delle imprese dalla "ricerca" alla "connessione"» (De Toni, 2021, p. 69). L'autore, inoltre, sottolinea come un tale modello – sebbene promosso a livello internazionale da Chesbrough (2003) soprattutto per le grandi imprese – «rappresenti, meglio di altri, le modalità con cui le PMI hanno sempre innovato e continuano ad innovare» (De Toni, 2021, p. 69).

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[2] È possibile prendere visione dei dati anche nel *Portale dei dati dell'istruzione superiore* del MIUR (http://ustat.miur.it/).

[3] Il modello dell'OI, messo a punto nel 2003 da Henry William Chesbrough, direttore esecutivo del Center for Open Innovation presso la Haas School of Business dell'Università della California di Berkeley, è un modello di business che cerca di valorizzare in modo strutturale il coinvolgimento – da parte delle imprese – di attori esterni all'impresa per individuare nuove idee e conseguentemente divenire più innovative e competitive sul mercato.

Le implicazioni dell'emergere di questo fenomeno per la formazione dei dottori di ricerca sono principalmente due: 1) da un lato, i dottorati di ricerca dovranno prestare attenzione a favorire lo sviluppo di competenze tali da consentire ai dottori di ricerca di svolgere un «lavoro chiave» che non sarà più quello della ricerca, ma quello della «connessione». I dottori di ricerca, infatti, saranno chiamati ad «essere non dei ricercatori propriamente detti, ma degli autentici "broker" della ricerca"» (De Toni, 2021, p. 69); 2) dall'altro, il percorso formativo dottorale dovrà prestare attenzione a promuovere lo sviluppo di competenze per favorire l'inserimento dei dottori di ricerca entro «unità di anticipazione o foresight» (De Toni, 2021, p. 70) all'interno delle imprese.

In letteratura, tuttavia, viene sottolineata anche l'importanza di soggetti intermediari che possano supportare soprattutto le piccole e medie imprese nel loro processo di integrazione con il mondo universitario (Marcuccio & Lo Turco, 2020).

L'azione pilota: I Talenti per l'Open Innovation

All'interno del panorama descritto nel precedente paragrafo, in particolare della didattica innovativa nelle scuole di dottorato, abbiamo individuato un'azione pilota – denominata I Talenti per l'Open Innovation – che ha coinvolto tra ottobre e dicembre del 2020 diversi attori dell'ecosistema economico formativo regionale dell'Emilia-Romagna in un'azione strutturata: realtà aziendali, accademiche, consulenziali e promotrici che all'interno di uno stesso contenitore hanno cercato di dare risposte concrete a dei fabbisogni reali.

Il contesto dell'iniziativa è stato letto come un percorso sperimentale di formazione non formale a supporto dello sviluppo di apprendimenti funzionali a gestire in modo efficace ed efficiente i processi di OI all'interno delle imprese.

L'idea dell'azione pilota I Talenti per l'Open Innovation nasce all'interno della società consortile Attrattività Ricerca Territorio dell'Emilia-Romagna (ART-ER), in particolare dalla sollecitazione diretta della direzione che ha richiesto di lavorare maggiormente sul tema del dialogo imprese e talenti, ponendosi quindi come soggetto intermediario a supporto delle imprese e della formazione dei talenti. La sollecitazione è stata presa in carico da due unità di ART-ER – unità innovazione per le imprese e unità competenze e territori per l'innovazione – che hanno progettato e presentato nel proprio Piano Annuale Consortile (PAC) un'azione denominata Comunità di talenti per l'Innovazione che prevedeva il supporto alla riduzione dello skill gap in ambito OI attraverso la progettazione e realizzazione di un percorso finalizzato all'accrescimento di competenze su tematiche orientate all'OI.

Inizialmente l'azione presentata prevedeva di partire dalle sfide proposte dalle imprese verso studenti con spiccate caratteristiche innovative; solo in un secondo momento la scelta è ricaduta su un target particolare ovvero i dottorandi denominati nel progetto Talenti.

Altra scelta di ART-ER è stata quella di richiedere alle imprese di manifestare il loro interesse proponendo sfide (challenge) non tecnologiche ma di organizzazione e/o riorganizzazione di processi e servizi. Le imprese, inoltre, hanno collaborato attivamente con i dottorandi, i facilitatori della società di consulenza coinvolta nell'iniziativa e ai coach di ART-ER a una possibile risoluzione delle stesse sfide.

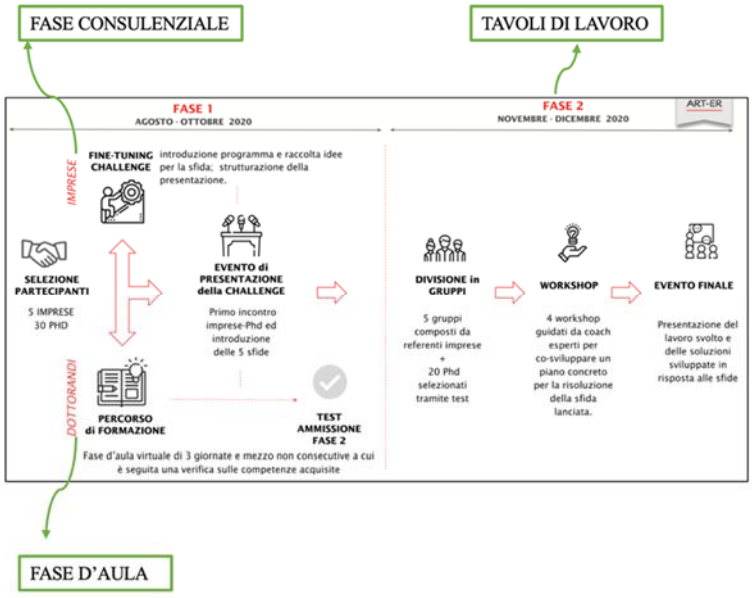
Gli obiettivi generali che l'iniziativa ha inteso perseguire erano due: da un lato, supportare le imprese nello sviluppo di un certo tipo di cultura condivisa sul tema generale dell'innovazione, con particolare attenzione al fare innovazione collaborando attivamente; dall'altro permettere ai dottorandi di confrontarsi con sfide concrete per testare gli apprendimenti sviluppati durante una fase preliminare del percorso.

L'azione pilota è stata progettata dal gruppo di progettazione di ART-ER in due fasi. La prima fase ha visto un momento di selezione dei partecipanti (5 imprese e 30 dottorandi) a cui sono seguiti due percorsi che si sono sviluppati parallelamente: un percorso consulenziale destinato alle imprese e un percorso d'aula destinato ai dottorandi. Terminati entrambi i percorsi vi è stato un primo incontro fra tutti i partecipanti, in cui le aziende hanno presentato le sfide che sarebbero state oggetto di tavoli di lavoro durante la seconda fase. La progettazione ha previsto un test di ammissione alla fase 2 per i dottorandi che dai 30 iniziali sono passati a 20.

L'avvio della fase 2 ha previsto la strutturazione in 5 tavoli di lavoro, composti ciascuno da referenti aziendali, dottorandi, un consulente facilitatore e un coach di ART-ER. Definiti i gruppi, la progettazione ha previsto l'avvio dei tavoli di lavoro. Ogni tavolo ha svolto 4 workshop finalizzati alla risoluzione della sfida posta dall'azienda. Vi sono stati anche momenti non previsti inizialmente e organizzati in modo autonomo da alcuni attori, in particolare i dottorandi, al fine di favorire un confronto prima del workshop successivo.

La progettazione prevedeva anche un momento conclusivo in cui i tavoli hanno presentato agli altri partecipanti all'azione il risultato della sfida (Fig. 1).

Figura 1- Strutturazione dell'azione pilota I Talenti per l'Open Innovation



Studio di caso multiplo olistico

Obiettivi della ricerca

Considerata la rilevanza, nel panorama nazionale, della formula utilizzata nell'azione pilota I Talenti per l'Open Innovation e la scarsa quantità, sia a livello internazionale che nazionale, di percorsi formativi formali e non formali tesi a sviluppare competenze di OI, abbiamo ritenuto importante rendere oggetto di uno studio di caso il percorso progettato da ART-ER.

Obiettivo generale della ricerca è stato quello di descrivere gli attori, i processi e gli esiti di tale azione in una prospettiva pedagogico/formativa rileggendo il percorso I Talenti per l'Open Innovation come un processo di formazione non formale a supporto dello sviluppo di apprendimenti funzionali a gestire efficacemente ed efficientemente i processi di OI all'interno delle imprese.

Il perseguimento dell'obiettivo generale è avvenuto attraverso il raggiungimento di due obiettivi specifici:

- Rilevare, analizzare e interpretare le percezioni, relative al processo e agli esiti del percorso formativo, di tutti i soggetti coinvolti (dottorandi; rappresentanti delle imprese; facilitatori di una società di consulenza; coach di ART-ER);

- Rilevare, analizzare e interpretare i documenti elaborati durante e al termine del percorso formativo.

Le attività messe in atto per raggiungere questi obiettivi sono state orientate dalla domanda di ricerca: l'interazione tra i soggetti coinvolti nell'azione pilota I Talenti per l'Open Innovation si è configurata come una Comunità di Pratica in grado di favorire, in modo sostenibile ed efficiente, lo sviluppo di apprendimenti funzionali a gestire i processi di OI attivati nelle imprese coinvolte?

L'ipotesi posta alla base della presente ricerca, considerata come ipotesi guida delle attività di raccolta e analisi dei dati, è stata pertanto così elaborata: l'azione pilota ha favorito la configurazione di una Comunità di Pratica che ha consentito ai partecipanti di sviluppare competenze individuali di OI.

Definizione del caso

La forma di ricerca scelta è lo studio di caso in quanto forma di ricerca in grado di consentire una descrizione del fenomeno complesso nella sua interazione con il contesto di riferimento. La scelta effettuata ha previsto di considerare il fenomeno I Talenti per l'Open Innovation come contesto di riferimento all'interno del quale tenere distinte due fasi principali (Fase 1 e la Fase 2) e di queste considerare la Fase 1 come propedeutica alla Fase 2 ma anche come microcontesto entro il quale si è sviluppata la Fase 2. È durante quest'ultima fase che sono stati costituiti dei tavoli di lavoro composti da un sottogruppo di dottorandi, i rappresentanti delle imprese, un consulente e un rappresentante di ART-ER.

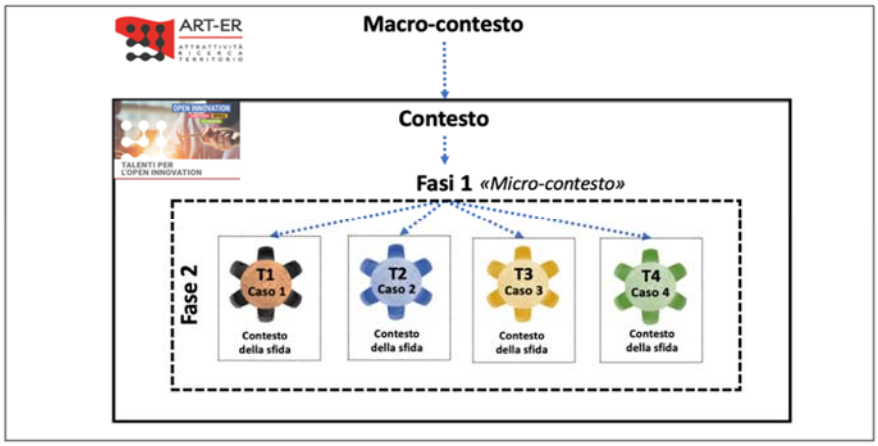
Successivamente, abbiamo considerato i tavoli di lavoro come i casi da studiare – attraverso un disegno di studio di caso multiplo olistico (Yin, 2003)[4] – inseriti ciascuno all'interno di uno specifico contesto di riferimento che abbiamo denominato contesto della sfida.

[4] La strutturazione data allo studio di caso si richiama al tipo 3 della tipologia dei disegni di ricerca dello studio di caso di Yin (2003; con integrazione presente in Yin, 2018, p. 129) ossia al disegno a caso multiplo olistico. Essa, tuttavia, è stata impostata richiamandosi a una visione sistemica del fenomeno che ha portato ai seguenti adattamenti rispetto al tipo 3 di Yin: 1) il contesto del caso è stato rinominato, nella nostra impostazione, con l'espressione contesto della sfida; 2) i casi e il relativo contesto della sfida sono stati inseriti all'interno di ulteriori tre dimensioni contestuali che abbiamo denominato microcontesto, Contesto e macrocontesto.

I casi individuati per la nostra ricerca, quindi, sono stati nello specifico i 4 tavoli di lavoro (Caso 1; Caso 2; Caso 3; Caso 4)[5], ciascuno delineato all'interno di un proprio contesto della sfida costituito dalle caratteristiche e dai vincoli dell'azienda rispetto alla quale, in prima istanza, era stata individuata e impostata la sfida e, in secondo luogo, è stata co-costruita la soluzione.

Questi quattro casi e il loro specifico contesto – il contesto della sfida – sono stati delineati all'interno di un microcontesto, costituito dalle caratteristiche della Fase 1 dell'azione pilota, che a sua volta è stato collocato all'interno del Contesto de I Talenti per l'Open Innovation, il cui macrocontesto era costituito dall'attività complessiva di ART-ER orientata e supportata dalle politiche regionali, nazionali ed europee di tipo aziendale, economico e territoriale (Fig. 2).

Figura 2- Quadro di riferimento dello studio di caso multiplo olistico



Questa delimitazione dello studio di caso multiplo olistico ci ha fornito il quadro entro cui è stata avviata la messa a punto dell'impianto di ricerca che ha previsto, tra i primi momenti, la concettualizzazione del caso-tavolo di lavoro come oggetto di ricerca.

Approccio e impianto della ricerca

L'approccio di ricerca assunto ha inteso indagare il fenomeno della formazione di soggetti coinvolti nei processi di OI integrando la visione funzionali-

[5] I tavoli di lavoro considerati non sono stati 5, così come le aziende partecipanti all'azione pilota, ma sono stati complessivamente 4 in quanto una delle imprese non ha aderito allo studio di caso per ragioni riguardanti la loro policy interna.

stica di tipo sociologico-organizzativa con quella di tipo antropologico-filosofico e pedagogico-formativo.

L'impianto della ricerca empirica è stato messo a punto integrando tre diverse prospettive teoriche – Comunità di Pratica, l'apprendimento basato sulla sfida (Challenge Based Learning - CBL) e l'hackathon – che hanno fornito la cornice per leggere il fenomeno indagato come una situazione non formale di sviluppo di apprendimenti funzionali all'OI.

L'apprendimento attraverso le sfide (Bransford et al., 2000; Birol et al., 2002; Apple, 2010; Gallagher & Savage, 2020; Leijon et al., 2021; https://www.cbi-course.com/programme) è il modello didattico con cui abbiamo letto e analizzato la relazione tra le sfide poste all'interno dei tavoli di lavoro e lo sviluppo di apprendimenti. È stato scelto per decodificare in modo rigoroso l'approccio formativo scelto solo implicitamente da parte dei promotori dell'iniziativa.

Le scelte a livello di delimitazione dell'oggetto di ricerca – la formazione all'OI – ci hanno portato a assumere l'hackathon (Nolte et al., 2018; Herbsleb, Nolte, Filippova, Bird & Scallen, 2019; Medina, Angarita & Nolte, 2020) come modello per evidenziare le potenzialità apprenditive di un processo organizzativo specifico dell'approccio dell'OI.

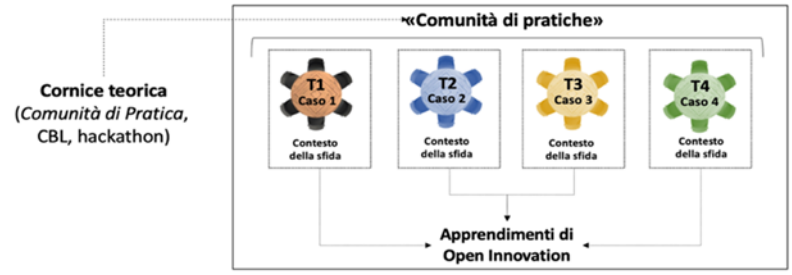
A queste due componenti teoriche ne abbiamo aggiunta una terza – la Comunità di Pratica (CdP) (Lave & Wenger, 1991; Wenger, 2006; Fabbri, 2010; Lipari & Valentini, 2021) – che, inglobando le precedenti, ci ha fornito gli strumenti concettuali per rilevare la dimensione situata – sia organizzativamente sia socialmente – e di gruppo dei processi di apprendimento all'interno dei casi indagati in presenza di livelli di partenza diversificati dei soggetti coinvolti tali da poter considerare alcuni "esperti" e altri "apprendisti" neofiti.

Gli esiti di apprendimento sono stati indagati utilizzando una tassonomia degli obiettivi di apprendimento creata appositamente durante la ricerca e fondata su un'articolata bibliografia (Marcuccio & Lo Turco, 2020).

Gli elementi di diverse prospettive teoriche – hackathon, CBL e CdP – integrati tra loro, hanno fornito la cornice concettuale che ci ha consentito di indagare se e in che misura i tavoli di lavoro costituitisi nell'ambito della Fase 2 dell'azione pilota I Talenti per l'Open Innovation potessero essere descritti come casi di situazioni non formali di sviluppo apprendimenti – denominate "CdP"[6] – funzionali all'OI (Fig.3).

[6] Abbiamo inserito l'espressione Comunità di Pratica tra virgolette per sottolineare che in tale costrutto, elaborato nell'ambito della presente ricerca, sono stati inseriti – come aspetti costitutivi – anche elementi specifici del concetto di hackathon e di challenge based learning. Del concetto di hackathon è stato assunto l'elemento della funzione per cui è stato costituito il gruppo di lavoro così come la sua particolare composizione (team multidisciplinare). Del concetto di challenge based learning, invece, è stata assunto il

Figura 3- La ridefinizione dell'oggetto di indagine



Gli obiettivi dello studio di caso multiplo olistico esposti precedentemente possono pertanto essere così riformulati: attraverso la rilevazione e l'analisi delle percezioni di tutti i soggetti coinvolti nei quattro tavoli di lavoro costituitisi nella Fase 2 dell'azione pilota I Talenti per l'Open Innovation e la raccolta e analisi dei documenti da essi elaborati:

- descrivere se e in che misura si sono sviluppate efficacemente "CdP" all'interno dei tavoli di lavoro;
- rilevare se le situazioni all'interno dei tavoli di lavoro sono risultate sostenibili e hanno favorito lo sviluppo di apprendimenti relativi al paradigma dell'OI.

Partecipanti

I soggetti partecipanti all'azione pilota nella sua interezza sono stati 5 referenti di ART-ER, 5 facilitatori della società di consulenza, 5 aziende del territorio emiliano romagnolo (Amadori; Parmalat; Pelliconi; Tetra Pak; Unitec) e 30 dottorandi provenienti da cinque differenti università della regione Emilia-Romagna (2 PhD dell'università del Sacro Cuore con sede a Piacenza; 8 PhD dell'università di Parma; 7 PhD dell'università di Modena e Reggio Emilia; 8 PhD dell'università di Bologna; 5 PhD dell'università di Ferrara).

I dottorandi sono stati poi ulteriormente selezionati alla fine della fase 1 del percorso attraverso un test (alcuni di loro, tuttavia, si sono ritirati volontariamente per motivi differenti) e solo 18 hanno avuto accesso alla fase 2 dei tavoli di lavoro.

I soggetti coinvolti nella nostra ricerca sono stati i partecipanti alla fase 2 ad eccezione di un tavolo di lavoro che, per scelte aziendali interne, non ha dato la

concetto di sfida come movente per lo sviluppo di apprendimenti. Nel proseguimento dell'articolo il significato del costrutto di Comunità di Pratica – anche se non inserito tra virgolette – dovrà intendersi nella nuova accezione attribuitagli in questo elaborato.

sua disponibilità allo studio di caso. Nel dettaglio: 4 referenti di ART-ER (coach), 4 facilitatori della società di consulenza, 8 referenti aziendali, 14 dottorandi.

I partecipanti sono stati suddivisi – così come da impostazione dell'azione pilota – in 4 tavoli di lavoro composti da diversi attori provenienti da differenti percorsi di studio:

- tavolo 1: 1 coach (scienze internazionali e diplomatiche); 1 facilitatore (ingegneria gestionale); 2 referenti aziendali (gestione aziendale; economia); 4 dottorandi (tecnologie dell'informazione @ UNIPR; salute e tecnologie @ UNIBO; 2 sistema agroalimentare @ UNICATT);
- tavolo 2: 1 coach (sviluppo locale); 1 facilitatore (ingegneria meccanica); 2 referenti aziendali (tecnologia e trasformazione alimentare; politiche europee e internazionali); 4 dottorandi (scienze chimiche, della vita e della sostenibilità ambientale @UNIPR; scienze e tecnologie agroalimentari @UNIBO; ingegneria industriale @UNIPR; ingegneria @UNIMORE);
- tavolo 3: 1 coach (ingegneria edile); 1 facilitatore (comunicazione ed economia, marketing e responsabilità sociale d'impresa); 2 referenti aziendali (ingegneria dei processi gestionali; design industriale); 3 dottorandi (tecnologie dell'informazione @UNIPR; medicina molecolare @UNIFE; ingegneria industriale @UNIPR);
- tavolo 4: 1 coach (antropologia sociale); 1 facilitatore (ingegneria/gestione industriale); 3 dottorandi (scienze e cultura del benessere e degli stili di vita @UNIBO; scienze biotecnologiche, biocomputazionali, farmaceutiche e farmacologiche @UNIBO; meccanica e scienze avanzate dell'ingegneria @UNIBO).

Procedure e strumenti di raccolta e analisi dei dati

I dati sono stati raccolti tra gennaio 2021 e agosto 2021 attraverso quattro differenti strumenti e procedure scelti in base sia al tipo di dato funzionale alla ricerca sia alla fase della ricerca.

La prima procedura messa in atto è stata una desk research effettuata sulla piattaforma di ART-ER che ha permesso di ottenere una serie di informazioni utili a ricostruire e leggere il macrocontesto, il contesto e i singoli tavoli (i casi) compreso il contesto della sfida.

Letti e analizzati questi primi dati, abbiamo proceduto con la raccolta dei rimanenti attraverso: un'intervista collettiva somministrata al gruppo di progettisti di ART-ER; un'intervista semistrutturata individuale somministrata a un consulente (che ha progettato l'azione insieme al gruppo progettazione di ART-

ER), a 4 referenti aziendali e a 14 dottorandi; un questionario online con domande a risposta aperta somministrato ai 4 facilitatori della società di consulenza presenti ai tavoli.

I documenti raccolti attraverso la desk research sono stati sottoposti dapprima a una valutazione circa il loro livello di qualità strutturale e, successivamente, sono stati sottoposti a un'analisi del contenuto di tipo qualitativo senza l'ausilio di software.

La valutazione della qualità strutturale dei documenti è stata effettuata su cinque differenti tipi di documenti raccolti. Per ciascun tipo sono stati individuati degli indicatori specifici utili ad analizzarne e valutarne la qualità strutturale su una scala di tre valori: alto; medio, basso. La successiva analisi qualitativa del contenuto dei documenti, effettuata attraverso un approccio di tipo strutturato (Trinchero, 2002), ha utilizzato i seguenti codici che riportiamo per macro-oggetto di analisi:

- macrocontesto e contesto: nascita dell'idea dell'azione pilota; attori che hanno ideato e progettato l'azione; idee emerse e confronto su quest'ultime; progettazione integrata tra aree organizzative di ART-ER; definizione finale dell'azione; elementi guida; identificazione del target di riferimento; selezione protagonisti dell'azione pilota; monitoraggio e valutazione;
- microcontesto (Fase 1): struttura e organizzazione; descrizione attività svolte; elementi di contesto delle fasi 1; fase 1 dottorandi – fase d'aula; fase 1 aziende – fase consulenziale; la progettazione della fase 2: i tavoli di lavoro (i casi).

Per l'analisi qualitativa del contenuto applicata alle interviste collettive, individuali e al questionario ci siamo avvalsi, invece, dell'ausilio del software MAXQDA con cui abbiamo effettuato una codifica in tre fasi: 1) una codifica di primo livello alla quale non abbiamo applicato intenzionalmente i codici direttamente riferiti sia al costrutto della CdP sia al tema degli obiettivi di apprendimento relativi all'OI; 2) una codifica di secondo livello, in cui sono stati utilizzati i codici riferiti alla CdP (forme di partecipazione: impegno, immaginazione, allineamento; dimensioni duali: partecipazione/reificazione, deliberato/emergente, locale/globale, identificazione/negoziabilità); 3) una codifica di terzo livello, in cui sono stati utilizzati i codici relativi agli obiettivi di apprendimento dell'OI (creatività, fare rete internamente ed esternamente, lavoro di gruppo, leadership, pensiero critico, disposizione al cambiamento).

Le procedure di analisi appena descritte sono state effettuate in due momenti distinti: un primo momento sui singoli casi, per evidenziarne le specificità; un secondo momento in cui è stata effettuata un'analisi cross-case allo scopo di far emergere elementi comuni e differenti a più casi.

Analisi e discussione dei risultati

Dall'insieme dei dati raccolti sembra emergere che l'ipotesi di partenza – ovvero che l'azione pilota I Talenti per l'Open Innovation abbia favorito, sebbene non intenzionalmente, la configurazione di una CdP che ha consentito ai partecipanti (dottorandi e rappresentanti delle imprese) di sviluppare competenze individuali di OI – sia stata verificata. Infatti, sono state rilevate, anche se non in tutti i casi, le caratteristiche proprie di una CdP (Tab. 1).

Tabella 1- Lo sviluppo di Comunità di Pratica

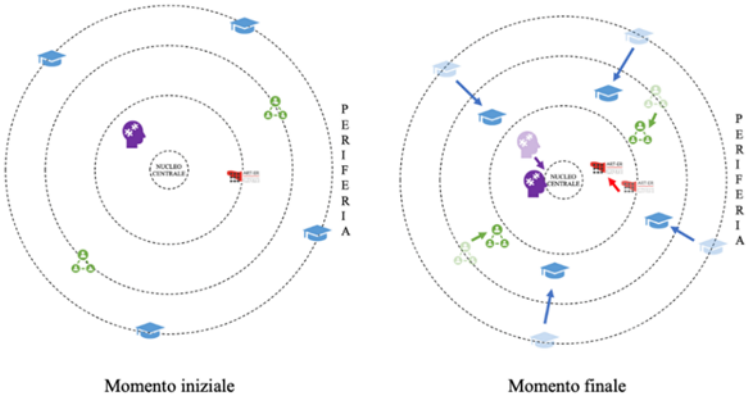
SVILUPPO CDP	Caso 1	Caso 2	Caso 3	Caso 4
Pratica come significato (negoziazione di significato)				
Partecipazione	M	B	M	A
Reificazione	A	M	A	A
Pratica come comunità				
Impegno reciproco	M	B	A	A
Impresa comune	A	B	A	A
Repertorio comune di approcci operativi	A	B	M	A
Pratica come confine	M	B	M	A
Raggiungimento del risultato finale	A	B	A	A
Pratica come processo di apprendimento	M	B	M	A
Sintesi dell'analisi	Comunità di pratica temporanea o «effimera»	-	Comunità di pratica temporanea o «effimera»	Comunità di pratica temporanea o «effimera»

** Legenda: A = Alto; M = Medio; B = Basso*

Al fine di rendere maggiormente visibile il cambiamento dei soggetti (pratica come confine), abbiamo elaborato una rappresentazione grafica (Fig. 4) che mette in evidenza lo "spostamento" dei partecipanti alla CdP dalla periferia – spazio di accesso informale a una pratica ma legittimo – al nucleo centrale –

spazio di detenzione del sapere a 360° relativo al modello di OI (focus dell'azione pilota).

Figura 4- Esempio di Pratica come confine (caso 1)



Anche nei casi in cui possiamo affermare che è avvenuto un cambiamento nei partecipanti e che si sono venute a costituire delle CdP – sebbene temporanee o effimere – dobbiamo però precisare che non tutte le competenze individuali di OI sono state sviluppate dai partecipanti. Il potenziamento di competenze individuali è stato differente in ogni singolo caso (Tab. 2).

Tabella 2- Lo sviluppo di competenze individuali di OI nei singoli casi

APPRENDIMENTI	Caso 1	Caso 2	Caso 3	Caso 4
Lavoro di gruppo	M	B	M	A
Pensiero critico	A	B	M	A
Creatività	A	B	M	A
Fare rete: internamente	B	B	B	B
Fare rete: esternamente	M	B	M	B
Disposizione al cambiamento	A	M	A	A
Leadership	/	/	/	/

** Legenda: A = Alto; M = Medio; B = Basso*

Dall'analisi delle trascrizioni delle dichiarazioni dei partecipanti è stato possibile inferire, inoltre, l'efficienza e la sostenibilità del percorso. Infatti, solo una minima parte dei partecipanti lamenta un impegno temporale superiore a quanto previsto dal bando. Tale criticità è stata oggetto di discussione in fase di riprogettazione della nuova edizione dell'iniziativa.

I risultati appena presentati ci forniscono una panoramica complessiva di come l'azione pilota I Talenti per l'Open Innovation sia un percorso sperimentale di educazione non formale caratterizzato da una didattica innovativa – sia dal punto di vista organizzativo sia metodologico – che, se progettato con alcune attenzioni specifiche può favorire: 1) la costituzione di CdP; 2) l'acquisizione e/o il potenziamento di apprendimenti specifici che non si sarebbero potuti sviluppare all'interno dei percorsi tradizionali di dottorato.

Conclusioni e possibili sviluppi

I Talenti per l'Open Innovation, letto come percorso formativo innovativo all'interno della proposta didattica delle scuole di dottorato organizzato e gestito interamente da un soggetto intermediario, fornisce ai dottorandi l'opportunità di arricchire il proprio bagaglio di conoscenze e competenze trasversali ai diversi ambiti di ricerca. L'iniziativa, pertanto, fornisce un valore aggiunto alla preparazione dei dottorandi utilizzabile anche al di fuori dell'ambito accademico, in particolare nel mondo del lavoro.

Le conoscenze e le competenze individuali di OI dei dottorandi appaiano generalmente arricchite ma ulteriori studi potranno essere condotti per approfondire ulteriormente la tassonomia delle competenze individuali di OI.

Tenendo conto che la nostra attività di ricerca è stata effettuata a iniziativa conclusa, in prospettiva per future edizioni e ricerche su di esse – o su altri possibili tipi di intervento affini – si potrebbero progettare fasi di sviluppo della ricerca che prevedano forme e strumenti utili all'autoriflessione critica degli studenti sul loro processo di apprendimento (Lipari & Valentini, 2021).

La soluzione organizzativa del percorso individuata dal soggetto intermediario è risultata sicuramente sostenibile, efficace ed efficiente così come emerge nel precedente paragrafo.

Tuttavia, per far raggiungere un più elevato livello di efficacia alle iniziative rivolte ai dottori di ricerca promosse da soggetti intermediari, riteniamo che sia necessario integrare i curricula dei diversi dottorati con tali iniziative grazie a una co-progettazione tra soggetti intermediari e docenti del collegio di dottorato.

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Saggi e ricerche

L'Internazionalizzazione delle Università

The Internationalization of Universities

Antonietta Rocco*

Riassunto

Oggi le Università sono chiamate a provvedere ad una rapida innovazione delle proprie competenze al fine di sostenere la competitività internazionale in una società sempre più globalizzata dai punti di vista economico, sociale, politico, culturale, scientifico e tecnologico. L'internazionalizzazione delle imprese, l'apertura delle frontiere, le nuove tecnologie hanno indotto gli Atenei ad adottare politiche di internazionalizzazione che promuovono la mobilità di studenti, docenti e personale amministrativo, l'uso veicolare delle lingue straniere e in particolare dell'inglese, la crescita di programmi internazionali di scambio, di studio e di ricerca, l'introduzione di titoli doppi, multipli e congiunti. Ci si chiede se l'internazionalizzazione sia sempre e comunque un elemento qualificante o possa assumere anche connotati negativi e risvolti inattesi. Si assiste ad un ripensamento della missione delle Università, come centri propulsori di progresso, sviluppo ed evoluzione. L'internazionalizzazione per un Ateneo non significa dimenticare o svalutare la propria storia e la propria tradizione, ma al contrario, va interpretata come una sfida per progettare nuove dinamiche di crescita e strategie di valorizzazione e per riqualificarsi come Università inclusiva e universalistica.

Parole chiave: Internazionalizzazione, Globalizzazione, Università, Mobilità, Studenti.

Abstract

Nowadays Universities are called upon to provide for a rapid innovation of their skills in order to support international competitiveness in an increasingly globalized society from an economic, social, political, cultural, scientific and technological point of view. The internationalization of businesses, the

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opening of borders, new technologies have led universities to adopt internationalization policies that promote the mobility of students, teachers and administrative staff, the vehicular use of foreign and foreign languages. Particular of English, the growth of international exchange, study and research programs, the introduction of double, multiple and joint degrees. One wonders if internationalization is always and in any case a qualifying element or can it also take on negative connotations and unexpected implications. We are witnessing a rethinking of the mission of universities, as driving forces for progress, development and evolution. For an university, internationalization does not mean forgetting or devaluing its history and tradition, but on the contrary, it must be interpreted as a challenge to design new growth dynamics and enhancement strategies and to redevelop itself as an inclusive and universal university.

Keywords: Internationalization, Globalization, University, Mobility, Students.

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Introduzione

Le società sempre più multietniche, la crescente mobilità di persone, merci, conoscenze, idee e progetti, e il progresso scientifico e tecnologico impongono alle Università obiettivi internazionalistici.

Il programma europeo Horizon 2020 ha individuato internazionalizzazione, intercultura e intersettorialità quali obiettivi prioritari da perseguire in ambito universitario.

Le riforme Ministeriali si sono indirizzate verso il rafforzamento e l'internazionalizzazione in linea con il "Processo di Bologna" del 1999 (e la strategia di Lisbona del 2000) in cui i Ministri firmatari condivisero l'obiettivo di costruire di uno Spazio europeo dell'Istruzione superiore nell'ambito della "Strategia europea 2020".

L'art. 2, comma 2, lettera l), della legge 30 dicembre 2010, n. 240 (Norme in materia di organizzazione delle università, di personale accademico e reclutamento, nonché delega al Governo per incentivare la qualità e l'efficienza del sistema universitario) prevede *«il rafforzamento dell'internazionalizzazione anche attraverso una maggiore mobilità dei docenti e degli studenti, programmi integrati di studio, iniziative di cooperazione interuniversitaria per attività di studio e di ricerca e l'attivazione, nell'ambito delle risorse umane,*

finanziarie e strumentali disponibili a legislazione vigente, di insegnamenti, di corsi di studio e di forme di selezione svolti in lingua straniera» .

Gli articoli 165 e 166 del Trattato sul Funzionamento dell'Unione Europea, al fine di sviluppare una istruzione di qualità, incentivano la cooperazione tra gli Stati membri, sostenendo ed integrando la loro azione *«nel pieno rispetto della responsabilità degli Stati membri per quanto riguarda il contenuto dell'insegnamento e l'organizzazione del sistema di istruzione, nonché delle loro diversità culturali e linguistiche»*.

Nelle università si registra una progressione di iniziative e progetti concernenti, oltre la promozione della mobilità di studenti, docenti e personale, sia *incoming* che *outgoing*, attraverso la stipulazione di accordi transnazionali, anche l'introduzione di programmi in cui si utilizza l'inglese come lingua veicolare; l'investimento in progetti di ricerca a vasto raggio, allo scopo di migliorare il proprio profilo a livello mondiale (Altbach & Knight, 2007).

In un'ottica di internazionalizzazione in senso sostanziale, e non meramente formale, la cifra numerica dei soggetti in mobilità in entrata o in uscita, non è indicativa del grado di internazionalizzazione di un Ateneo. Occorrerebbe invece puntare su un programma coerente di azioni volte a favorire, in termini qualitativi e non meramente quantitativi, una effettiva integrazione universitaria e sociale, non una mera coesistenza/compresenza di soggetti, programmi, idee e culture. È stato sostenuto che l'integrazione può essere intesa in tre distinte accezioni: monistica, quando la cultura più forte assorbe quelle più deboli o di minoranza; dualistica o pluralistica, quando due o più gruppi di soggetti diversi coesistono in modo indipendente ma senza interazioni (multiculturalismo); e interazionistica, nel caso in cui persone appartenenti a gruppi etnici e culturali diversi cercano, non solo di vivere pacificamente, gli uni accanto agli altri, ma anche di interagire tramite un costante scambio di idee, norme, valori e significati (Portera, 2013).

L'internazionalizzazione dell'offerta formativa, della ricerca, dell'organizzazione, la mobilità di tutte le componenti dell'ateneo, la cooperazione, la produzione scientifica, il trasferimento di conoscenza, il potenziamento della comunicazione e delle reti, le politiche linguistiche (CRUI, 2015) sono elementi di profondo arricchimento professionale e personale dell'individuo e dell'Università nella misura in cui si pongano non come scopo, ma come mezzo per migliorare la qualità dei corsi, della ricerca, dell'accoglienza e la responsabilità sociale dell'Università.

Politiche di internazionalizzazione

L'internazionalizzazione dell'istruzione superiore ("IoHE" – "*Internatio-*

nalization of Higher Education") è un processo vasto e poliedrico, caratterizzato da una pluralità di logiche politiche, socioculturali, economiche e accademiche e coinvolge, oltre alle Università, anche regioni, Paesi, istituzioni, aziende private e società civile. L'internazionalizzazione è stata definita come il processo che introduce una dimensione internazionale, interculturale o globale nello scopo, nelle funzioni o nell'erogazione dell'istruzione superiore a livello istituzionale e nazionale (Knight, 2008).

Il termine 'internazionalizzazione' riferito alla formazione terziaria, è inteso talvolta come sinonimo, talvolta come contrario, a quello di 'globalizzazione' (de Wit, 2011; Knight, 2008). I due concetti sono collegati tra loro ma non perfettamente coincidenti: il primo indica l'ambito educativo e culturale, assumendo una connotazione positiva e premiante, mentre il secondo allude a scambi commerciali transnazionali (de Wit, 2011; Altbach, 2004).

L'internazionalizzazione è ormai diffusa negli istituti di istruzione secondaria di tutto il mondo, come emerso dalla 5ª Global Survey della IAU. Oltre il 90% degli Atenei coinvolti ha dichiarato che politiche di internazionalizzazione sono presenti nella loro missione/piano strategico.

Ogni politica di internazionalizzazione di un Ateneo si articola in tre stadi successivi (Ayoubi & Habiabeh, 2006; Ayoubi & Massoud, 2007): 1) fase progettuale di pianificazione di obiettivi strategici, programmi di insegnamento, partenariati, mobilità, ricerca, sviluppo di nuove discipline a vocazione transnazionale e interculturale, analisi costi-benefici e gestione del rischio; 2) attuazione di azioni reali e misure organizzative per l'esecuzione del progetto; 3) valutazione del processo di internazionalizzazione implementato rispetto al progetto strategico iniziale, con esame degli eventuali ostacoli e criticità, come problemi finanziari, difficoltà linguistiche e culturali riscontrate nonché dei vantaggi conseguiti.

Una internazionalizzazione valida ed efficace deve permeare le politiche generali e gli indirizzi di ateneo (*purposes*), le funzioni dirette a realizzare operativamente tali finalità (*functions*), la produzione e la trasmissione della conoscenza articolata nei prodotti della ricerca o nell'articolazione dell'offerta formativa (*delivery*) della quale occorre evitare una eccessiva differenziazione, poiché una più ampia offerta didattica se da una parte incentiva la domanda da parte di studenti stranieri, dall'altra genera il problema della dispersione e della frammentazione dei piani di studio individuali (Dordit & De Toni, 2019).

Gli studenti hanno l'opportunità di acquisire conoscenze professionali e sperimentare altre culture e sistemi educativi (Poole, 2004), svolgere tirocini, trovare sbocchi professionali, di vita e di lavoro in un mondo globalizzato. Tutto il personale universitario docente e non docente, può trarne benefici in termini, ad esempio, di maggiori opportunità per la ricerca interdisciplinare e

per il miglioramento dell'esperienza professionale e lavorativa (Warakaulle, 2004).

Ma l'internazionalizzazione presenta problemi e resistenze: per gli studenti, gli ostacoli sono rappresentati principalmente dalle difficoltà di adattamento, dai costi di trasferta e permanenza all'estero che rendono poco accessibili le opportunità internazionali, dalle barriere linguistiche, dallo "*shock* culturale" (Pritchard & Skinner, 2002; Thorstensson, 2001; Bakalis & Joiner, 2004). Occorre considerare anche la fase critica di reintegrazione e reinserimento degli studenti che rientrano dall'estero al termine del periodo di mobilità, che è stato definito 'ciclo di vita degli studenti internazionali' (Pérez-Encinas et al., 2007). Tale criticità può essere superata favorendo un contesto formativo incentrato sulla reciproca esperienza: la formazione acquisita all'estero diventa partecipata tra studenti, *incoming* e *outgoing*. Il docente e lo studente apprendono tramite l'apporto dei differenti *background* dei rispettivi Paesi di origine, generando nuove idee (Dordit & De Toni, 2019).

I Paesi in via di sviluppo avvertono il pericolo di perdere risorse umane necessarie per conseguire prosperità, progresso culturale e benessere sociale. Il reclutamento di studenti internazionali su larga scala, infatti può determinare o accelerare la cd. la fuga dei cervelli. D'altra parte, la presenza di un gran numero di studenti internazionali può indurre l'errata percezione della riduzione delle opportunità per gli studenti nazionali o alimentare inconsapevolmente pregiudizi nei confronti degli stranieri. Ciò può oscurare i vantaggi intellettuali e interculturali altamente positivi che gli studenti internazionali apportano alla comunità in cui studiano e vivono (Rugge, 2012). Per quanto possa risultare faticoso, i benefici dell'apprendimento accademico all'estero scaturiscono non solo da un arricchimento contenutistico, ma anche nello stimolo alla riflessione e al pensiero comparativo che esso favorisce (Teichler, 2012).

La principale fonte di finanziamento della mobilità è il bilancio istituzionale seguita da finanziamenti pubblici esterni, nazionali e internazionali. Se queste fossero esigue o esaurite, le opportunità internazionali potrebbero allora risultare accessibili solo a studenti dotati di risorse finanziarie adeguate. Ciò vale particolarmente per gli studenti *degree seekers* che decidono di iniziare e completare un intero percorso di studi all'estero, rispetto alla maggioranza deli studenti *credits seekers* che invece trascorrono in un ateneo estero un periodo di tempo limitato (Dordit & De toni, 2019). Le politiche incentrate principalmente sul reclutamento di studenti internazionali paganti mina alla base il concetto di internazionalizzazione equa e sostenibile: occorre allora prevedere e incentivare meccanismi di borse di studio, erogate dall'Unione Europea, dal Ministero dell'Università o eventualmente da altri enti, prestiti e sostegni di

varia fonte per studenti capaci ma sforniti di mezzi finanziari idonei (IAU 5th Global Survey).

A tal fine risultano utili le politiche di *fund raising* per finanziare l'internazionalizzazione, la collaborazione con enti pubblici e privati anche stranieri, la semplificazione dei processi, gli incentivi alla mobilità in tutte le sue possibili accezioni (*visiting professor* e *scholar*, da remoto e in presenza, in uscita e in entrata...). Per effettuare un programma di mobilità a costo zero, si potrebbe optare per l'internazionalizzazione virtuale.

Esistono infatti due dimensioni principali dell'internazionalizzazione degli Atenei. L''internazionalizzazione in casa' riguarda la possibilità di sviluppare competenze livello internazionale e interculturale senza mai lasciare il proprio paese d'origine (Knight, 2003 e Nilsson, 1999) ma seguendo corsi *online,* MOOC (*massive open online course*), collegandosi a piattaforme di altri Atenei, effettuando progetti *erasmus* e *visiting professor* da remoto. L''istruzione transfrontaliera' invece si riferisce a tutte quelle situazioni nelle quali si varcano i confini nazionali per svolgere all'estero la propria attività di studio o lavoro (Bakar Abu & Abdul-Talib, 2013). Strutturare una mobilità virtuale, sincrona o asincrona, per agevolare gli studenti è di certo una politica valida e apprezzabile ma occorre porre attenzione al rischio che essa possa assumere una connotazione di mobilità surrogata o di serie B rispetto alla mobilità fisica *d'élite*, innescando un sistema di internazionalizzazione a due livelli. A tali due modalità di internazionalizzazione dell'istruzione superiore si aggiunge la cd. *Blended mobility* ovvero una mobilità in parte fisica e in parte virtuale.

Esistono però limiti dell'apprendimento da remoto per attività pratiche, laboratori e tirocini, presenti nei corsi di laurea in medicina e chirurgia, professioni sanitarie, veterinaria ma anche per molte aree creative come arte, musica e discipline di *design* dove la pratica non può essere sostituita dalla didattica a distanza per mancanza della necessaria attrezzatura e del relativo ambiente laboratoriale/sperimentale non simulabili a distanza (IAU, May 2020).

La pandemia da Covid-19 ha influito sulla mobilità *erasmus* in due distinte direzioni: da un lato si sono ridotte drasticamente, e in alcuni periodi praticamente azzerate, le partenze e gli arrivi di studenti *incoming* ed *outgoing*, dall'altro la crisi sanitaria ha dato una notevole spinta alla mobilità virtuale da remoto effettuata tramite l'accesso a piattaforme telematiche. Tale forma di mobilità, da emergenziale può diventare ordinaria, al fine di consentire la partecipazione al programma *erasmus* anche a studenti impossibilitati per motivi di lavoro, di famiglia o di salute. Durante il *lockdown* il passaggio dalla mobilità fisica a quella virtuale è stata indolore per gli atenei localizzati in zone più digitalizzate, ma molo più complicato in Atenei di aree geograficamente e tecnologicamente depresse per i quali è stato difficile evitare la completa interruzione delle attività accademiche. Tuttavia in generale gli istituti di istru-

zione superiore hanno saputo fronteggiare la crisi sanitaria grazie ad un elevato grado di resilienza e creatività (IAU, May 2020). Ma anche all'interno della stessa università può risultare difficile garantire pari opportunità di apprendimento tra studenti che dispongono di strumentazioni informatiche adeguate, collegamenti internet e licenze, e studenti sforniti di tali supporti.

Anche le politiche interne ed estere degli Stati possono incidere sull'internazionalizzazione accademica. A seguito dell'invasione dell'Ucraina da parte della Russia molte università hanno deliberato concrete iniziative di solidarietà verso studenti, docenti e staff, come borse di studio, assegni di ricerca, alloggi gratuiti, raccolta fondi, esenzione dalle tasse, proroga della durata delle borse di studio e della permanenza in Italia. Alcuni Atenei hanno sospeso gli accordi con le istituzioni legate al governo russo, confermando però la disponibilità nei confronti di tutti gli studiosi di nazionalità russa che subiscono conseguenze di scelte dittatoriali indipendenti dalla loro volontà e contrarie al rispetto del pluralismo delle idee e alla crescita culturale fondata sul dialogo.

L'Agenzia Nazionale Erasmus+ INDIRE ha stabilito che per i beneficiari di progetti Erasmus+, che abbiano partecipanti diretti verso o provenienti dai territori in questione, lo stato di guerra può essere invocato come causa di forza maggiore per interruzioni o cancellazioni di attività progettuali e giustificare il ritorno in Italia di studenti presenti nelle zone del conflitto. Con il decreto-legge 28 febbraio 2022, n. 16 (Decreto Ucraina) il governo ha stanziato 500 mila euro per sostenere a titolo di cofinanziamento – "*le iniziative intraprese dalle università, dalle istituzioni Afam e dagli enti pubblici di ricerca a favore della "comunità scientifica ucraina*" –. In sede di conversione la misura è stata estesa a tutti i profughi e anche ai cittadini non di nazionalità ucraina o russa in fuga dalla guerra, grazie al raddoppio del finanziamento.

Nonostante le problematiche, gli Atenei intensificano le loro attività internazionali per vari motivi: accrescere la loro reputazione in una competizione accademica sempre più globale, conquistando posizioni di vertice nel sistema dei *ranking* internazionali (es. QS e THE); ampliare numero e qualità di pubblicazioni scientifiche e progetti di ricerca internazionali, attrarre studenti grazie alla possibilità di studiare e lavorare all'estero; conseguire un aumento del gettito di tassazione studentesca e di finanziamenti. Con questi benefici a cascata l'Ateneo coniuga la sua dimensione locale e la sua vocazione internazionale.

Sebbene i *ranking* internazionali siano stati spesso oggetto di discussione a causa della problematicità di comparare situazioni molto diverse fra loro, spesso i soggetti che programmano una mobilità all'estero basano la propria scelta sul posizionamento degli atenei nei *ranking* internazionali che costitui-

scono dunque una forte attrattiva a svantaggio di atenei più giovani e di modeste dimensioni (Crui, 2019).

Il grado di internazionalizzazione di un Ateneo si misura in base al numero di accordi di partenariato internazionale, ai progetti di ricerca collaborativa, ai consorzi e ai contatti internazionali, alla produzione scientifica congiunta, al numero di personale internazionale presente in ateneo, ai *curricula* internazionali, alla percentuale di studenti stranieri rispetto a quelli nazionali, al numero di visite di studenti, ricercatori e studiosi stranieri, al numero di Paesi stranieri in cui l'Università opera, alle aree geografiche interessate dalle attività di internazionalizzazione accademica (Ayoubi & Massoud, 2007). Tuttavia la valutazione della dimensione internazionale degli atenei non può basarsi sul mero aumento numerico delle relative iniziative, ma su una concezione nuova dell'internazionalizzazione, non più considerata come uno dei settori dell'ateneo di competenza di uno specifico ufficio, spesso composto da poche unità di personale, ma come un principio informatore e qualificante dell'intera *mission* delle università (CRUI, 2019). L'internazionalizzazione infatti si configura come il risultato di un passaggio da una situazione di internazionalizzazione rilevata in un dato momento, e quella stessa situazione misurata in un momento successivo al termine del fenomeno internazionalizzante *(*Dordit & De Toni, 2019). Questo impone un ripensamento delle politiche di ateneo incentrato su parametri di qualità e merito, non numerici. La complessità del fenomeno e l'inderogabile necessità di integrazione tra le diverse fasi e i diversi *stakeholder* richiedono, inoltre, l'impiego di indici compatibili e condivisi di assicurazione della qualità anche al fine di superare ostacoli come il riconoscimento di diplomi stranieri e periodi di studio all'estero (IAU 5th Global Survey).

L'internazionalizzazione non supportata da una coerente programmazione, da politiche di integrazione e cooperazione, e da un continuo monitoraggio, rischia di minare l'identità culturale, storica, artistica e geografica dell'Università.

Strumenti e strategie per internazionalizzare l'Università

L'internazionalizzazione è oggi una priorità strategica per gli Atenei nell'organizzazione della didattica, della ricerca, della terza missione e dei servizi, e richiede un tempestivo ed efficace snellimento delle procedure di riconoscimento di titoli e crediti conseguiti all'estero, l'omogeneizzazione delle scale delle votazioni e la formazione di piani di studio facilmente fruibili e intellegibili a livello internazionale.

L'offerta internazionale si sostanzia di una serie di progetti ed iniziative. Un ruolo centrale assumono gli accordi e le convenzioni per la mobilità nell'ambito dei Programmi *Erasmus (European action scheme for the mobility of university students*) nelle sue declinazioni: *Erasmus,* che promuove la mobilità degli studenti e la collaborazione tra università; *Erasmus Plus c*he offre l'opportunità di fare tale esperienza in ognuno dei cicli di alta formazione, compresi quindi il triennio, il biennio di specializzazione e il master; *Erasmus Mundus*, che permette a laureati e docenti universitari provenienti da tutto il mondo di conseguire un master frequentando corsi proposti da consorzi di almeno tre università europee. L'offerta transnazionale può riguardare corsi di laurea o parte di essi o *post lauream*; *twinning programms* e *double degree* (Dordit & De Toni, 2019). Questi programmi possono prevedere lo svolgimento all'estero di lezioni, esami, tirocini, ricerca tesi, attività di tipo curriculare ed extracurriculare, in Stati membri dell'UE, o di Paesi extra-europei partner del programma.

Un importante strumento di internazionalizzazione è costituito dal dottorato europeo congiunto (*joint european doctorate*), ad oggi ancora scoraggiato da politiche nazionali restrittive e protezionistiche che frenano la sua completa attuazione e la sua più ampia diffusione (De Rosa, 2008; Dordit & De Toni, 2019).

Notevole diffusione nell'ambito della internazionalizzazione dell'offerta formativa hanno acquisito i corsi MOOC che offrono percorsi di formazione *on-line*, aperti, spesso gratuiti e fruibili a distanza da un numero elevato di studenti (Porter, 2015). Questi corsi, erogati in ambienti di apprendimento virtuali, *Virtual Learning Environment* (VLE), possono contenere video, materiali e attività interattive (esercitazioni, casi studio, simulazioni) svolte dai corsisti supportati da tutor *(tutored, proctored*) o in autonomia (*self paced*) (Ferri, 2019). L'apprendimento digitale, è un apprendimento agevolato dalla tecnologia che fornisce agli studenti il controllo su tempo, luogo, percorso e ritmo di apprendimento favorendo la conciliazione dei tempi di studio, lavoro e impegni familiari (Morris, 2014).

Interessante ruolo nell'internazionalizzazione delle Università è costituito dalla possibilità di strutturare corsi di studio interamente in lingua straniera con rilascio finale del titolo dell'università italiana, oppure corsi di laurea erogati in lingua italiana o straniera con rilascio finale di titolo doppio, multiplo (*double degree)* o congiunto (*joint degree*). Trattasi di corsi di studio progettati con atenei stranieri che consistono in *curricula* integrati e forme di mobilità sistematica degli studenti, con il reciproco riconoscimento delle attività formative svolte. Con i titoli doppi o multipli gli studenti acquisiscono sia il titolo rilasciato dalla propria Università di appartenenza, sia i corrispondenti titoli accademici emessi dalle altre Università estere aderenti al progetto, presso le

quali abbiano acquisito i relativi crediti formativi. Il titolo congiunto invece consiste in un unico titolo validato e riconosciuto da tutte gli Atenei coinvolti nel relativo percorso di studi congiunto. Tali corsi e titoli doppi, multipli e congiunti possono riguardare lauree triennali, specialistiche, magistrali, dottorati di ricerca e master. Le *consecutive degrees* riguardano prevalentemente le lauree specialistiche o magistrali (*Master degree*), con riconoscimento dei crediti ottenuti dallo studente al termine della laurea di primo livello (*Bachelor degree*) tra istituzioni appartenenti a stati diversi.

Per realizzare tali percorsi occorre incrementare e potenziare l'offerta di corsi 'di' lingua inglese e di corsi 'in' lingua inglese da inserire nei percorsi di laurea e post-laurea con rivalutazione del ruolo e delle attività dei centri linguistici di Ateneo, incoraggiando anche lo studio di eventuali ulteriori lingue straniere.

L'utilizzo esclusivo o prevalente della lingua straniera nella strutturazione dell'offerta formativa di per se non è sufficiente a qualificare un corso come internazionale. Occorre che anche la metodologia e gli strumenti didattici, i contenuti, i *curricula*, e le prospettive occupazionali siano fortemente internazionalizzati e attraenti, sia per gli studenti nazionali, sia per quelli internazionali in egual misura (Crui, 2019).

L'erogazione dei corsi in lingua inglese presuppone la disponibilità e le competenze linguistiche dei docenti e l'offerta, presso lo stesso ateneo o atenei limitrofi a costo non troppo diverso, di un corso di laurea della stessa classe di quelli in lingua straniera (Crui, 2019). In particolare quest'ultimo requisito è necessario per rispettare i principi costituzionali di uguaglianza, libertà di insegnamento e diritto allo studio come stabilito dalla corte costituzionale (Sentenza 42/2017) sul giudizio di costituzionalità avente ad oggetto l'art. 2, comma 2, lettera *l*), della Legge Gelmini (n. 240/2010) che precede il "r*afforzamento dell'internazionalizzazione anche attraverso ... l'attivazione... di insegnamenti, di corsi di studio e di forme di selezione svolti in lingua straniera*". La Consulta ha stabilito infatti che i principi costituzionali previsti dagli artt. 3, 6 e 33 della Costituzione sarebbero violati qualora interi corsi di studio fossero erogati esclusivamente in una lingua diversa dall'italiano ma sarebbero invece rispettati qualora gli atenei decidessero di affiancare all'erogazione di corsi universitari in lingua italiana corsi in lingua straniera, anche in considerazione della specificità di determinati settori scientifico-disciplinari.

Oltre all'apprendimento e alla diffusione delle lingue straniere, viene altresì incentivata la cooperazione bi/plurilaterale anche con i paesi terzi extraeuropei e con le organizzazioni internazionali (Dordit & De Toni, 2019). Le università possono istituire percorsi di studio coerenti con le richieste provenienti dal mondo del lavoro e delle professioni, nazionali ed internazionali, mediante una offerta formativa variegata e adeguata ai continui cambiamenti

dell'ambiente socio-economico. Tuttavia, il ruolo dell'Università non può esaurirsi nella risposta alle richieste di professionalità dal contesto economico, ma essa stessa deve assumere un ruolo propositivo e trainante, con reciproco arricchimento, come ad esempio creazione di brevetti e *spin-off* internazionali. Le politiche di internazionalizzazione tese ad incrementare l'occupabilità dei laureati, se nell'immediato rendono 'appetibili' e concorrenziali i corsi di laurea generando un incremento delle immatricolazioni, a lungo termine possono portare al fenomeno del *brain drain* al quale si devono affiancare politiche di *brain gain* (Kone & Ozden, 2017).

L'Ateneo può attivare progetti e servizi commissionati da terzi mettendo a disposizione di soggetti internazionali, le proprie competenze e strutture, nonché le professionalità del proprio personale per svolgere, nell'interesse del committente, attività di consulenza, ricerca, supporto, formazione e servizi nell'ottica del reciproco e contestuale sviluppo culturale, sociale ed economico.

La crescita di programmi transnazionali e l'istituzione di sedi distaccate pone la questione su come queste siano in grado di garantire un'istruzione paragonabile a quella fornita dall'ente promotore nel proprio paese di origine. L'esistenza di una realtà accademica straniera può costituire una situazione di svantaggio per gli istituti di istruzione superiore locali che cercano di rispondere ai bisogni nazionali (IAU, 2012).

Dal punto di vista della comunicazione, particolare attenzione va data alla leggibilità della pagina web dedicata all'area internazionale, mentre per quanto riguarda l'accoglienza è opportuno efficientare i servizi di ammissione e ricevimento, la diffusione di residenze universitarie, il supporto nelle pratiche di permessi e visti. Per l'Università, importanti occasioni per diffondere la cultura dell'internazionalità sono costituite da convegni, seminari, *international weeks*, *workshop*, fiere, eventi di carattere informativo/formativo, culturale, scientifico, promozionale, *recruiting day*, *job fair*, conferenze stampa, mostre, eventi aziendali anche privati sempre coerenti con le attività dell'Ateneo.

Ogni processo di internazionalizzazione può realizzarsi attraverso due strategie opposte ma coesistenti: una di concorrenza e competizione mirata all'attrazione di studenti e decenti stranieri, e una di cooperazione incentrata sull'attivazione di titoli congiunti e *network* di ricerca internazionali. In ogni caso tutte le strategie possono considerarsi valide e auspicabili quando siano leali e fungano da volano dello sviluppo qualitativo, oltre che quantitativo, di tutte le componenti dell'Università e, di conseguenza, il motore dello sviluppo culturale, economico e sociale del Paese.

L'internazionalizzazione delle Università oggi è sinonimo di qualità e pertanto richiede un approccio sistematico e una sua presenza trasversale in tutte le funzioni, i processi, i settori e gli uffici dell'intera struttura accademica non

solo in specifiche attività o missioni; non va intesa come un fine bensì come uno strumento efficace per realizzare la missione culturale, istituzionale e sociale dell'Università stessa.

Conclusioni

L'internazionalizzazione accademica si configura come un'esperienza multietnica e pluriculturale in cui gli Atenei sono indotti ad implementare rapide innovazioni non solo di funzioni e strutture ma anche di competenze e professionalità. Essa impone una difficile ma non impossibile riconfigurazione delle politiche, delle scelte strategiche e dei modelli organizzativi di ateneo. Va affrontata in sinergia con altri *stakeholder* accademici e non, in particolare con i governi nazionali al fine di rimuovere ostacoli, resistenze e situazioni di svantaggio e promuovere la mobilità, l'occupabilità, l'apprendimento permanente, l'integrazione e l'aggiornamento professionale dei laureati

Oltrepassare i confini nazionali è stata storicamente la propensione delle Università sin dalla loro origine medievale. Il processo di apertura del mondo accademico verso l'estero originariamente incentrato sulla mobilità fisica delle persone, si è evoluto grazie alla elaborazione di nuovi modelli e progetti di internazionalizzazione su vasta scala e in diverse direzioni. Gli studi compiuti e le ricerche svolte indicano che i vantaggi e i benefici di un processo di internazionalizzazione ponderato superano i costi e gli ostacoli relativi.

L'internazionalizzazione dell'Università, correttamente intesa come processo *in fieri* non risultato statico, basata sulla collaborazione, potrà così innescare un circolo virtuoso di scambio e confronto multidisciplinare e transnazionale, diffondendo competenze, risorse, persone, reti, e progetti, nel rispetto dalla libertà e dell'identità di ciascuno. Essa non implica l'adesione ad un modello universale e omogeneo di offerta formativa, ma investe la proiezione internazionale degli specifici modelli di formazione e la valorizzazione dei patrimoni culturali di ogni singolo Paese e di ogni singola istituzione.

Internazionalizzare l'Università può voler dire anche sperimentare il dialogo tra diversi settori della conoscenza: tra le scienze sociali e tecniche, umanistiche e scientifiche per trovare idee e soluzioni innovative al fine di competere ma anche di cooperare con il resto del mondo. Inoltre, la preparazione di base va corredata di competenze flessibili e capacità relazionali e di dialogo interculturale (*soft skills*).

Politiche e strategie di internazionalizzazione rendono gli Atenei interpreti e promotori di sviluppo culturale e coesione sociale tra paesi sviluppati e di nuova industrializzazione, rispettando e valorizzando la libertà accademica, l'autonomia istituzionale e le differenze di ciascuno. Condivisione dei risultati

non significa perdita di esclusività ma valorizzazione degli stessi, significa concepire la conoscenza come strumento di progresso e di riscatto dell'umanità, e non come strumento di potere economico e politico, sebbene questi due orientamenti coesistono in maniera non sempre facile.

Ulteriore risvolto positivo di un processo di internazionalizzazione razionale e consapevole consiste nella promozione dell'inclusione sociale, della parità di genere, della lotta alle discriminazioni di ogni tipologia, sviluppando così la dimensione sociale dell'istruzione superiore terziaria, in Italia e nel mondo, come formazione equa, accogliente, inclusiva e solidale.

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