THE IMPACT OF A POST-PANDEMIC EDUCATIONAL TECHNOLOGY TRAINING ON USABILITY AND ACCEPTANCE BY TEACHERS OF ITALIAN AS A FOREIGN LANGUAGE

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1. INTRODUCTION

Post-pandemic language education practices are the result of the accelerated adoption of technology on a global scale, which have forced teachers to quickly adapt to digital tool use for instructional purposes. Identified under the term of educational technology, these practices facilitate and improve language performance «by creating, using and managing appropriate technological processes and resources» (Januszewski, Molenda, 2013: 1). A rise in the integration of digital tools in language classrooms have implied reconfigurations of educational spaces in both online and face-to-face settings which stressed the importance of teachers' acquisition and knowledge of digital skills to conduct classroom activities in remote and face-to-face environments. Despite attested examples of digital tool use in Italian school contexts, teachers' acceptance and implementation of educational technology in post-pandemic instructional practices have yet to be assessed, especially with regards to variables of acceptance, ease of use and usefulness. Although it is true that data has been collected on the effects of training teachers in educational technology, researchers have only focused on pre-service teachers' experiences. Consequentially, this resulted in a lack of information on more experienced instructors. In an attempt to bridge this gap, this article addresses the following question: what is the impact of an educational technology training course on digital tool acceptance and classroom implementation amongst teachers of Italian as a foreign language?

It is believed that attempting to answer this question can help to identify guidelines on improving pedagogical language practices with educational technologies. To meet this aim, this paper initially reviews the literature on policies for the integration of educational technology in school curricula and on teachers' application of digital tools in Italian school contexts. Subsequently, the paper analyses data collected from 27 instructors of Italian as a foreign language during a teacher training course in educational technology at the *Centre for Adult Education* (CPIA) in Bologna (Italy). During the interventions, impact assessment was conducted via a mixed-method design examining pre and post course surveys and teachers' answers to a focus group interview. Results demonstrated teachers' increased willingness to adopt educational technologies in their classes, as well as rising levels of acceptance of using digital tools as effective instruments to conduct effective classroom management. This demonstrates that online teaching modalities may highlight technological affordances to connect teachers with students, whilst situating educational practices in digital environments. Within this context, it is believed that the results of this investigation may underline the necessity of investing time and resources in delivering

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training courses on educational technologies to boost teachers' acquisition and implementation of digital skills in language classes.

2. LITERATURE REVIEW

2.1. *Policies and tendencies for the integration of technology in the classroom*

Educational technology is a term associated with digital practices conducted with the use of portable devices such as personal computers (PCs) and mobile phones. As the definition suggests, educational technology is meant to facilitate students' learning, implying that teachers' knowledge of the technological affordances of digital tools is essential for their successful implementation in classroom activities. Therefore, in a discussion on adopting educational technology in language classrooms, what acquires prominence are teachers' digital skills. In an attempt to define these competences, the *European Framework for the Digital Competence of Educators* (Redecker, 2017:16) has outlined six descriptive areas comprising professional engagement skills, resource management and creation, learners' assessment and empowerment and facilitation of competence acquisition. Therefore, giving teachers training programs on educational technologies to support their professional development is increasingly becoming a necessity, rather than a possibility.

To address these needs, the European Union promotes the application of innovative pedagogical practices in school settings though *Policies of Multilingualism and Innovation in Education* (European Commission, 2022). Included in this program is the *EU Digital Education Action Plan* (2021-2027), which aims at encouraging opportunities for teachers to acquire and apply technological competences in educational practices to create flexible learning ecosystems addressing the needs of an increasingly digital society.

The aforementioned EU policies are the response to the accelerated adoption of technology in language education following the Covid-19 pandemic, during which teachers experimented with technologies to plan and deliver class contents on a near-to-global scale (Pozo *et al.*, 2021). This has contributed to raise teachers' awareness of the pedagogical advantages of implementing technologies in the school curriculum (Persico *et al.*, 2020). These integrations are also likely to have heightened teachers' curiosity to learn more about digital instruction modalities (Vaganova *et al.*, 2020), hence the need for educational institutions to invest time and resources in teachers' development of technology skills. These practices are in line with the EU guidelines to «develop research methodologies and create design principles for a democratic and emancipatory digitalization of education» (Teräs *et al.*, 2020: 874), which highlight the pivotal role of education as an environment to practice the necessary competences to socially and professionally interact in increasingly digital societies and economies.

Despite the fact that the EU guidelines discuss in great detail the digitalization of language education practices, few enquiries have been conducted on teacher's acceptance of digital tools during and after a training in educational technology use. Even less studies have focused on teachers of Italian as a foreign language. Moreover, investigations on educational practices resulting from training courses on educational technology have mostly involved pre-service teachers instead of experienced instructors, suggesting research possibilities with this type of participants.

2.2. *Considerations on teachers' adoption of educational technologies*

Resource availability is key in determining the successful application of educational technologies as demonstrated by schools' spending reports on the acquisition of digital equipment for classroom conduction (Yuksel, Robin, McNeil, 2011). However, teachers' subjectivity surfacing as attitudes, self-efficacy and self-assessment on technology use also acquire particular importance in class-based applications of digital tools (Cubukcuoglu, 2013). With specific reference to teachers' attitudes towards the integration of PCs and mobile phones in class, overall results from the literature are ambivalent. In fact, teachers' concerns on using technology appear to be directed to students' distraction and inefficient classroom management resulting from a lack of teachers' knowledge of technological affordances. Specifically, it has been reported that teachers consider mobile technologies as detrimental for language students as they might cause distraction and encourage disengagement from classroom activities (Dietz, Heinrich, 2014). When using mobile phones in language classes, teachers said that students were drawn to texting and conducting unrelated activities when bored with class contents (Green, 2019). Others believed that using mobile phones as instructional tools prevented teachers from developing their class management skills with adverse consequences for students' performance and course results (Mandell, 2015). On the other hand, teachers recognized the usefulness of incorporating mobile phones and PCs in the curriculum to enhance personalization of classroom instruction and add variety to classroom activities. They also praised the creation of student-centered learning opportunities with digital tools and mentioned their suitability for task-based activities (Thomas, Reinders, 2010; O'Bannon, Thomas, 2014). Therefore, it appears that, while recognizing the downsides of digital tools, teachers' willingness to use PCs and mobile phones in the classroom is supported by the outweighing benefits of educational technology use.

Another important factor to consider when investigating instructional uses of technology is online self-efficacy, which is defined as teachers' confidence in implementing good instructional practices with digital tools (Christophersen *et al.*, 2016; Gudmunsdottir, Hatlevik, 2018). With reference to language education, teachers with high levels of online self-efficacy were found to be more successful in classroom management and activity conduction than those with less confidence in their digital skills. In fact, when assessing their technological competences, teachers with low online self-efficacy struggled to use technology in language teaching, demonstrating low digital skills (Wang *et al.*, 2004; Stonehocker, 2017). Since these studies are antecedent to 2020, it is believed that teachers' levels of perceived online self-efficacy in post-pandemic educational contexts deserve further investigations in order to understand the impact of digital tool use on instructional practices. In addition, further enquires in this field might provide guidelines for the design of training courses on educational technology aimed at teachers' professional development.

Overall findings from the literature confirm the importance for teachers to be professionally trained in educational technologies to create effective digital language learning ecosystems. These considerations also apply to language instruction since technology can be used to enhance practical aspects of task-based teachers' practices. However, evidence from the literature highlighted that when designing teacher training courses for the development of digital skills, it is important to understand the reasons behind teachers' attitudes towards technology and their implications for classroom management, activity structure and the development of pedagogically-informed language education methodologies. In fact, as mentioned by Monica *et al.* (2006: 12), in designing efficient teacher training with educational technology «there is a need to explore the ways

in which language tutor attributes and expertise develop and change, not only as tutors acquire more experience, but as they enter new environments, particularly online environments and virtual support networks». Consequently, further analysis should be conducted on the language learning ecosystems resulting from increased teachers' exposure to digital tools and their related implementation in language classrooms.

2.3. *Researching technological integrations in the language classroom*

The importance of subjectivity in adopting language instruction technologies leads to methodological considerations on investigating teachers' acceptance and classroom implementation of digital tools. From methodological perspectives, the *Technology Acceptance Model* (TAM) elaborated by Davis (1989) has been widely used to investigate teachers' behavioral intentions, surfacing as perceived ease of use and usefulness of technology due to its applicability in language education research. While the concept of usefulness refers to users' perspectives on increasing teachers' performance through the application of technology, ease of use indicates perceived levels of effortlessness in implementing it. These concepts are measured though multi-item scale tests organized as statement clusters. In this way, sub-parameters of perceived usefulness and ease of use are administered to users before and after implementation of digital tools in professional contexts.

Results from practical applications of this model showed that the role of perceived usefulness of digital tools in influencing behavioral intentions to adopt class-based technology is stronger than perceived ease of use (Davis, 1993). This is particularly relevant for assessing the attitude of teachers involved in educational technology training as it is expected that teachers recognize the usefulness of digital tools for didactic purposes irrespectively of digital user-friendliness. However, despite the popularity of the TAM model in interventions on teachers' technological acceptance, most examples in the literature refer to interventions on pre-service teachers, while their applications in training professional teachers are still limited.

2.4. *The Italian context*

Limitations to the digitalization of Italian schools relate to digital innovation and educators' adoption of technology in their professional practices (European Commission, 2020). Affecting factors consist of low connection speed, an ageing and tech-naïve teacher workforce[2] and an education expenditure amongst the lowest in the European Union[3].

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[2] In 2018, 68% of teachers reported having participated in in-service training in ICT for teaching in that year, a marked increase over 2013, and only 16.6% felt a strong need for ICT training, below the EU-22 average of 18% (OECD, 2019). However, while the share of teachers who frequently or always let students use ICT for projects and class work grew from 30% in 2013 to 46.6% in 2018, only 35% of teachers reported using ICT when teaching in most or every lesson in 2018, compared to 72% in Finland and 49% in Portugal. In addition, teachers tend to use ICT mainly to consult information sources (33%) and content linked to textbooks (34%), in line with a frontal teaching approach, while only a minority uses interactive learning resources, practice programmes or learning games. The lack of familiarity with more innovative digital technologies for teaching may reflect the age composition of the teaching workforce, and the need to strengthen in-service training in ICT for older teachers. (European Commission, 2020).
[3] General government expenditure on education in 2018 increased in real terms by 1% on the previous year, but remains well below the EU average, both as a proportion of GDP (4% v 4.6%) and as a proportion of

Within this context, during the three-months Covid-related lockdown and for the rest of 2020, teachers in Italy had to quickly integrate technology into their educational practices by delivering classes entirely online. This represented a major challenge for most teachers as some were first-time users of computer-based educational tools and often lacked specific information on how to digitally manage classroom contents (Pellegrini, Maltinti, 2020). These conditions highlighted a lack of teacher training programs and institutional support in implementing class-based educational technologies (Korbek, 2019). Despite these difficulties, teachers appeared to recognize the importance technology use in their educational practices. In fact, in their studies on teachers' positive acceptance of technology in online classrooms, Menabò *et al.* (2022) found that Italian teachers praised technology as an opportunity to develop digital skills and create versatile lessons. Further evidence emerged from the outcomes linked to the widespread implementation of technology in educational practices, as teachers positively judged their abilities to provide personalized educational material, quickly adapt to online-only educational environments and effectively apply their pedagogical readiness to remote education. However, some teachers criticized classroom accessibility due to technical constraints and fatigue from digital over-exposure, complaining that classroom management was left to teachers' responsibility instead of being administered at an institutional level (Giovanella, Passarelli, Persico, 2020).

From these considerations, it appears that there is a need for innovation in Italian educational policies with regards to classroom technologies, as well as a necessity to support teachers' competences with technology use. A solution to these needs is raising teachers' awareness of the ease of digital tool use, since the likelihood of technology adoption is highly dependent on teachers' efficacy to manage and implement these resources. In fact, as demonstrated by research conducted by Menabò *et al.* (2022) on Italian school teachers, online teaching strongly affects the relationship between perceived usefulness and ease of use of technology. This stresses the importance of encouraging teachers to use technologies that can easily be integrated in classroom activities so that teachers' efficacy can be promoted to high levels.

The above-mentioned aspects highlight the necessity to provide teachers with methodological preparation and support in incorporating digital tools into the classroom. This may foster teachers' self-perception of technological proficiency, which is likely to lead to successful implementation of digital tools into educational contexts. On this matter, Menabò *et al.* (2020) have emphasized the importance of teachers' readiness in implementing remote learning and blended teaching modalities in Italian schools to ensure that educational practices match the European recommendations for the digitalization of educational settings. This could enable Italy's recovery from falling behind other European countries in terms of didactic implementation of educational technologies (Avvisati, 2013). However, by reviewing the literature on technological implementation in Italian educational contexts, it is believed that there are two main gaps that need to be addressed. The first is an investigation on teachers' post-pandemic perceptions of technology use in language classrooms. The second is an analysis on teachers' judgements on training courses specifically aimed at enhancing technological skills for language instruction. Both gaps will be addressed in this paper though research conducted on experienced teachers of Italian as a foreign language attending a training course in educational technology.

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total general government expenditure, which at 8.2% is the lowest in the EU (9.9%). (European Commission, 2020).

3. METHODOLOGY

3.1. *Hypotheses*

As anticipated in the introduction, this study explores the acceptance and class-based implementation of digital tools by teachers of Italian as a foreign language attending a course on educational technology to address a gap in the research on technological implementation in the Italian educational context. Information was collected through surveys and a focus group interview. It was hypothesized that, when compared to pre-course questionnaires, post-course data would reveal:

- H1 High acceptance of technology use in the language classroom.
- H2 Increased willingness to adopt technologies in the language classroom.

3.2. *Participants and procedures*

Data was collected during a four-weeks training course in educational technology conducted in May 2022 and organised by the *Centre for Adult Further Education* (CPIA) in Bologna (Italy). Participants consisted of 27 teachers of Italian as a foreign language working in elementary, middle and high schools or in language centres. Classes were conducted once a week for 3 hours on the platform *Google Meet*, totalling up to 12 hours of instruction. Each lesson consisted of four parts, described in Table 1.

Table 1. *Course contents*

	Description	Contents	Structure
Week 1	Fundamental topics in educational technology	Pedagogical implications of using technology in language classrooms	Pre-activity survey, theoretical instruction, exemplification, practice through *Kahoot!*
Week 2	Learning through technology: digital literacy and ubiquitous learning	Principles of ubiquitous learning and classroom practices with digital storytelling	Pre-activity survey, theoretical instruction, exemplification, practice through *Wakelet* to create class materials
Week 3	Methodologies for teaching with technology: task-based and blended language teaching	Methodological overview of task-based teaching with technology and blended instruction	Pre-activity survey, theoretical instruction, exemplification, practice though task-based lesson planning
Week 4	Technology for language learning: examples and practical applications	Theoretical overview of blended methodologies and examples of task-based instruction	Theoretical instruction, exemplification, post-activity survey, focus groups

This structure enabled participants to learn the pedagogical principles informing the field of educational technology, practice digital skills by planning classroom activities with the applications examined in class and monitor their advancement in educational

practices. During the last 30 minutes of each lesson, the teachers created lesson plans including the digital tools outlined in class and uploaded them on a shared *Google Drive* folder and in order to receive the researcher's feedback.

3.3. *Surveys*

Surveys were administered to the students via *Google Forms* and shared on the *Google Meet* chat. At the end of each class participants completed one survey which enabled the researcher to collect data on participants' classroom practices with technology.

Participants were given 15 minutes to complete the questionnaires. Since completion was not obligatory, surveys were administered at the beginning of each class to encourage participation. The only exception was Week 4, where teachers completed the survey at the end of the class to enable the collection of information on course satisfaction and teachers' attitudes. In terms of contents, while sections of the first and last questionnaires were TAM-based, questionnaires of Weeks 2 and 3 targeted participants' implementation of the technologies proposed in class. All questions were in Italian and consisted in a combination of Likert scale, checkboxes and qualitative questions. In accordance with the guidelines on questionnaire design provided by Dörnyei (2007), participants were asked to express their judgements according to four parameters: strongly disagree (SD), disagree (D), agree (A) and strongly agree (SA). The surveys of Weeks 1 and 4 consisted in questions on teachers' attitudes, while the ones of Weeks 2 and 3 were related to applications examined in class. This research will only analyse the answers provided in Weeks 1 and 4 as they contained the most relevant data related to acceptance and ease of use. Moreover, it is important to stress that since the two questionnaires were not mandatory, the number of answers recorded in each questionnaire differed by 10 units. In fact, while 27 participants responded to the survey of Week 1, only 17 answers were recorded in the last questionnaire. Despite such disparity, the data provided by the questionnaire of Week 1 was consistent with the results of Week 4.

3.4. *Focus group*

At the end of the last class, the researcher interviewed the participants for 20 minutes as a final course evaluation. 27 participants took part to this focus group, which was structured according to the following questions:

- How did the applications and tools examined in the course change your teaching activities?

- Can you provide examples of such changes?

- After this course, what kind of challenges are you still facing in implementing technologies in class?

- Is there anything else you would like to add on your experience of implementing digital tools in class?

Responses were recorded using a Victure V3 digital recorder, transcribed and examined by the researcher through content analysis.

4. ANALYSIS

4.1. *Experience with educational technology and perceptions on their use within the Italian school system*

Factors deemed to influence teachers' acceptance of educational technology were investigated by querying participants on their technological proficiency and the perceived support received by the Italian school system in implementing digital tools in language classes. Specifically, the survey of Week 1 demonstrated that the majority of participants claimed to possess an intermediate technological proficiency despite not having utilized digital tools in their language learning experiences. When expressing their opinions on whether the Italian school system favors the adoption of technology, 51% of the participants answered positively, stating that methodological changes, the introduction of digital books and the availability of free online resources are practices that are increasingly being encouraged with the aim of providing a more inclusive learning environment. They also claimed that the pandemic of Covid-19 greatly incentivized the adoption of educational technology.

Table 2. *Teachers' reasons behind positively replying to the question: «do you think the Italian educational system is favoring the adoption of digital tools in language teaching?»*

Original answers in Italian	English translations
2.1) Attraverso le applicazioni varie, con gli strumenti compensativi per DSA (mappe concettuali, sintesi vocale, ecc.), con siti internet.	2.1) [It is encouraged] through [the use of] various applications, tools for Specific Learning Disorders (conceptual learning maps, vocal synthesis etc.…), through websites.
2.2) Sì, ma limita all'uso del PowerPoint e Google Suite. Pochi usano *Kahoot*! o altra app.	2.2) Yes, but it is limited to the use of *PowerPoint* and *Google Suite*. Few [teachers] utilize *Kahoot!* or other applications.
2.3) Utilizziamo sempre di più libri digitali e audiolibri.	2.3) We increasingly use digital textbooks and audiobooks.
2.4) Le colleghe di lingue che conosco fanno ampio uso di libri elettronici e di siti internet.	2.4) The language teachers that I know Make great use of digital textbooks and websites.
2.5) Sicuramente c'è un maggior uso di strumenti digitali, ma soprattutto è cambiata la metodologia di insegnamento-apprendimento della lingua straniera a partire dalla scuola primaria o addirittura dell'infanzia.	2.5) For sure there is an increased use of digital tools, but most importantly language teaching and learning methodologies have evolved from primary school or even from kindergarten [compared to the past].
2.6) La competenza digitale è una tra quelle che necessariamente va acquisita.	2.6) Digital competence is amongst those skills that necessarily need to be acquired [by teachers].
2.7) Dall'introduzione della DAD in particolare i docenti hanno scoperto applicativi e strumenti online da proporre nella propria didattica.	2.7) From the inception of online instruction, teachers have learned about online applications and instruments to incorporate in their methodologies.

2.8) Sì ma dalla pandemia ad oggi.	2.8) Yes, but from the pandemic to nowadays.
2.9) Credo di sì, attraverso l'utilizzo di libri digitali, strumenti interattivi, link su siti specifici, applicazioni dedicate.	2.9) I believe so, through the use of digital books, interactive tools, specific links and dedicated applications.
2.10) Penso che lo stia caldeggiando, più che favorendo.... ma il supporto, il sostegno arriverà o dal sistema scolastico o dagli insegnanti che si attrezzeranno sempre più per fruttare le opportunità di questa nuova risorsa.	2.10) I think it is being warmly supported, rather than favored…but the support will either arrive from the school system or from the teachers who will increasingly prepare to take advantage of this new resource [educational technology].
2.11) Attraverso la versione digitale dei libri di testo, LIM…	2.11) Through the digital version of textbooks, interactive blackboards…
2.12) Sì, come strumento di inclusione e per migliorare l'apprendimento degli studenti e per personalizzare l'apprendimento.	2.12) Yes, as a tool of inclusion to improve students' learning and personalization.
2.13) Parzialmente o meglio si utilizza la tecnologia come ancora di salvezza non come modalità autonoma.	2.13) We use technology in a partial or better way, like an anchor of safety but not autonomously.
2.14) Si, sta incrementando ad esempio l'uso di libri digitali.	2.14) Yes, we are for instance increasingly using digital books.

However, the remaining 49% claimed that several obstacles discourage the implementation of educational technology in Italian schools, including a lack of resources, specific support and training (Table 3).

Table 3. *Teachers' reasons behind negatively replying to the question: «do you think the Italian educational system is favoring the adoption of technology tools in language teaching?»*

Original answers in Italian	English translations
3.1) A mio parere è ancora incentrata su una didattica tradizionale.	3.1) In my opinion it is still centered on traditional forms of teaching.
3.2) Computer e linea internet obsoleti.	3.2) Obsolete computers and connection.
3.3) Pochi strumenti a disposizione.	3.3) Limited tool availability.
3.4) Mancano i mezzi e i materiali.	3.4) Resources and tools are missing.
3.5) La sede del CPIA dove lavoro non ha portatili, LIM, tablet o altro. Vero che è una sede provvisoria, ma per tutto l'anno scolastico! Inoltre, quando lavoravo alla Primaria, era sempre complicatissimo portare i ragazzi nel laboratorio multimediale. E se c'erano problemi tecnici alla LIM o con la connessione, passavano mesi prima che il problema venisse risolto.	3.5) The Centre for Adult Further Education (CPIA) where I work does not have PCs, digital blackboards or other tools. It is true that it is a temporary location but we will use it for the whole school year! Moreover, when I used to work in primary schools, it was always complicated to take pupils to the multimedia lab. If there were technical problems related to the blackboard or the

	Internet connection, it took months for the problem to be fixed.
3.6) Non si fanno abbastanza corsi di aggiornamento, non si coinvolgono gli insegnanti, tutto è lasciato all'iniziativa personale anche se il PNSD ha dato indicazioni precise su cosa si dovrebbe fare e anche le indicazioni successive sono state esplicite.	3.6) There are not enough courses for professional development, everything is left to teachers' initiative, even if the National Plan for the Digital School provided clear indications on what should be done.
3.7) Ognuno viene spesso lasciato a sé stesso e ogni scuola ha attrezzature diverse, che spesso non vengono valorizzate, senza formare i docenti per utilizzarle.	3.7) Each teacher is often left on his/her own and each school has different tools which are often not valued and teachers are not trained on how to use them.
3.8) Parzialmente e spesso con sistemi tecnologici "vecchi" come i laboratori di lingue.	3.8) Partially and often with "old" technology systems like language labs.

These perceptions provided insightful information on teachers' beliefs in educational technology related to their competences and their professional school contexts. To deeply understand teachers' subjective perceptions of technology use, the next section will provide the results of perceived usefulness and ease of use of digital tools for educational purposes, surfacing from the answers to the questionnaires completed in Weeks 1 and 4.

4.2. *Usefulness and ease of use*

Acceptance of digital tools was measured at the beginning (Week 1) and the end of the training (Week 4). For clarity, results have been divided by week.

4.2.1. *Pre-course questionnaire, Week 1*

As of Week 1, TAM-based questions were administered to participants after the questions shown in Tables 2 and 3. Tables 4 and 5 provide the number of answers given by the participants, corresponding to strongly disagree (SD), disagree (D), agree (A) and strongly agree (SA). Information related to mean (μ) and standard deviation (σ) were provided for statistical significance.

Table 4. *Evaluating the reasons motivating course attendance through the question: «think about the reasons that motivated you to attend this course and choose the judgement that best suits each statement»*

Component	SD	D	A	SA	μ	σ
4.1) The use of technologies can improve the quality of teaching.	1	2	11	13	6.75	6,13
4.2) The use of technologies can improve the efficacy of teaching.	1	2	11	13	6.75	6.13

4.3) The use of technologies can enable better classroom management.	2	3	10	12	6.75	4,99
4.4) The use of technologies can quicken the preparation of teaching activities.	1	6	10	10	6.75	4,27
4.5) Overall, educational technologies are useful.	1	2	13	11	6.75	6,13

Table 5. *Evaluating daily habits with technology through the question: «think about your daily relationship with technologies and choose the judgement that best suits each statement»*

Component	SD	D	A	SA	μ	σ
5.1) The use of technologies makes me confused and frustrated.	12	11	4	1	6.75	5,35
5.2) I have to check multiple times for the instructions and/or ask an expert before using technologies.	10	14	4	0	6.75	6,21
5.3) I think that interacting with technologies requires an inflexible and unmodifiable approach.	16	11	0	0	6.75	8,05
5.4) I think that using technologies is easy.	2	10	8	7	6.75	3,40

4.2.2. *Post-course questionnaire, Week 4*

With regards to the results of Week 4, TAM-based questions were embedded in an evaluative survey of the training. Questions were modelled according to those of Week 1, with added references to the specific applications used in the course (Tables 6 and 7).

Table 6. *Evaluating the perceived usefulness of the technologies examined in the course through the question: «think about the experience you have had during this course and choose the judgement that best corresponds to each statement»*

Component	SD	D	A	SA	μ	σ
6.1) The use of technologies and methodologies examined in the course can improve the quality of a teaching job.	0	2	6	9	4,25	4,03
6.2) The use of technologies and methodologies examined in the course can improve the efficacy of a teaching job.	0	1	7	9	4,25	4,42
6.3) The use of technologies and methodologies examined in the course can enable better classroom management.	0	4	7	6	4,25	3,94
6.4) The use of technologies and methodologies examined in the course can quicken lesson preparation.	1	3	9	5	4,25	3,41
6.5) Overall, the platforms and methodologies examined in the course are useful.	1	0	7	9	4,25	4,42

Table 7. *Evaluating the perceived ease of use of the technologies examined in the course through the question: «think about the experience you have had during this course and choose the judgement that best corresponds to each statement»*

Component	SD	D	A	SA	μ	σ
7.1) The use of technologies and methodologies examined in the course makes me confused and frustrated.	3	9	3	2	4,25	3,20
7.2) I have to check multiple times for the instructions and/or ask an expert before using the technologies examined in the course.	0	9	8	1	4,25	4,65
7.3) I think that interacting with the platforms and the methodologies examined in the course requires an inflexible and unmodifiable approach.	9	6	1	1	4,25	3,94
7.4) Overall, the educational technologies examined in the course are easy to use.	1	8	4	4	4,25	2,87

Teachers were also asked to provide information on their willingness to implement the technologies examined in class (Table 8). Finally, when prompted to answer whether they were willing to use digital tools after this training, 94.1% replied they were more in favor than before starting the course, against 6.9% of less favorable responses (Figure 1).

Table 8. *Evaluating teachers' willingness to implement the applications and technologies examined in the course*

Component	Yes	No	It depends on context/class group
8.1) I will use Kahoot in my classes.	5	1	11
8.2) I will use Wakelet in my classes.	6	1	10
8.3) I will use other applications amongst those shown in this course.	5	0	12
8.4) I will use applications different from those shown in this course	8	2	7
8.5) I will use a task-based methodology to integrate technology in my classes.	6	1	10

Figure 1. *Answers to the question: «after attending this course, how willing are you to allow for digital tool integration in the language classroom?»*
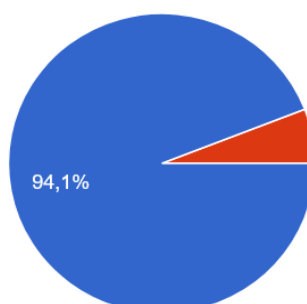
As a final question of the survey of Week 4, participants provided suggestions for improving future training courses, which included extending course length and more time availability to practice the applications examined in class.

Table 9. *Extracts of participants' answers to the question: «which suggestions would you give to improve this course?»*

Original answers in Italian	English translations
9.1) Il corso <u>dovrebbe essere un po' più lungo</u> in modo da poter sperimentare gli strumenti digitali e la metodologia didattica, almeno in parte, anche durante le lezioni. <u>Mettere in pratica ciò che si è appreso per me è fondamentale</u> per un apprendimento significativo. Inoltre <u>è fondamentale che vengano organizzati più spesso corsi di aggiornamento di questo tipo per insegnanti.</u>	9.1) The course <u>should be a bit longer</u> so that we can experiment digital tools and related methodologies, at least partially, even during our lessons. <u>Putting to practice what I have leant is of paramount importance</u>. Moreover, <u>I believe it is essential that more professional learning courses like this one are made available to teachers.</u>
9.2) <u>Avere avuto tempi più distesi</u> per cimentarsi con contenuti maggiormente impegnativi da un punto di vista personale.	9.2) [I would like to] <u>have had longer time</u> to try new contents and more challenging applications.
9.3) Ho trovato il tutto molto critico nei confronti della cosiddetta "old school" (che continua ad avere, per come la penso io, validità) e una presunta "new school" che punta molto alla personalizzazione e che <u>difficilmente si ritrova nelle classi reali in cui entriamo ogni giorno.</u>	9.3) I have found the course too critical of an "old school" (which I believe is still a valid instructional method) in favour of a so-called "new school" [methodology] that enhances personalisation, <u>which is difficult to find in everyday school contexts.</u>

Teachers' answers were transcribed and translated as follows:

Table 10. *Extracts of participants' answers to the focus group question: «how did the applications and tools examined in the course change your teaching activities? »*

Original answers in Italian	English translations
10.1) Per me è stato molto interessante usare *Kahoot!*, perché <u>ha spostato il mio punto di vista sulla didattica</u>. Quello che prima era il lavoro effettivo fatto dagli studenti era un po' una conseguenza finale di un processo di apprendimento lungo, mentre la metodologia task based vede il task come elemento presente sin dall'inizio, dove gli studenti hanno un ruolo centrale. Io li ho visti molto interessati a realizzare il prodotto finale del task.	10.1) It was very interesting to use *Kahoot!* because <u>it shifted my perspective on language teaching</u>. What students previously used to do in my classes was the result of a longer [learning] process, whilst task-based methodology focuses on the task as the starting point of a learning path, with students having a central role [in it]. So, I have seen the students very interested in creating the final task product. This shift in my point of view really engaged me and it

Questo spostamento del mio punto di vista sui task mi ha interessato molto ed è stato un qualcosa in più in questo corso <u>che mi ha fatto capire che voglio mantenere questo punto di vista</u> anche se capisco che questa metodologia non si può usare sempre.	was a nice addition to my profession which made me <u>realize I am going to maintain this newly acquired perspective</u> [in my profession], although I understand this methodology cannot be always applied.
10.2) Prima di cominciare questo corso, non avevo mai pensato che con uno strumento tecnologico potesse essere fonte di difficoltà, ma poi ho visto quelle attività che ci hai mostrato e ho cambiato opinione. Io mi sono sempre battuta per fare delle attività in presenza, per portare gli studenti a fare delle esperienze vere nel mondo reale, che è già difficile perché tutti sappiamo com'è la realtà della burocrazia della scuola e com'è difficile coinvolgere gli studenti di ogni grado di istruzione in attività pratiche. Quindi, <u>questo livello di coinvolgimento con la realtà virtuale mi spaventa molto perché usandola coinvolgiamo gli studenti in ambienti virtuali che sono dei "non luoghi", come l'aeroporto, il caffè…ma non sono veri.</u> Questo mi spaventa molto. <u>Mi sembra un ambiente molto povero e mi spaventa il fatto che possa sostituire la realtà invece di stimolare i docenti a lottare per una scuola che porta fuori dalla classe gli studenti a vedere e fare cose nella realtà, e non per una scuola che propone una realtà artificiale.</u>	10.2) Before starting this course, I had never thought that a technological instrument could be a source of issues but then I saw the activities you proposed and I have changed my point of view. I have always supported the view that activities done in person take students outside of the class, in the real world, to do real experiences, which is already something difficult because we all know how complicated it is to involve students of all educational levels in practical activities. So, <u>this level of involvement with Virtual Reality scares me a lot because by using it we involve students in virtual environments which are "non-places", like an airport, a coffee shop…but they are not real.</u> This scares me a lot. <u>It [Virtual Reality] seems to me like an inferior environment which might substitute for reality instead of encouraging teachers to fight for a school that takes students outside the classroom to see and do things in the real world, instead of promoting a school focused on an artificial reality.</u>

Table 11. *Extract of participants' answers to the focus group question: «can you provide some examples of such changes? »*

Original answers in Italian	English translations
Ho provato a usare Kahoot! e, dalla frequenza delle risposte che mi hanno dato, <u>ho visto persone molto motivate ed interessate. Gli studenti erano sempre attivi e presenti e molto motivati. Loro sono stati molto a loro agio,</u> forse perché erano abituati ad usare la tecnologia quindi erano più predisposti a provare applicazioni nuove. <u>Nessuno ha riscontrato difficoltà nell'uso di queste applicazioni.</u>	I have tried to use Kahoot and <u>I saw very motivated people</u> from the answers they gave me. <u>Students were always very active and motivated. They seemed at ease,</u> maybe because they were familiar with using [in-class] technology and more inclined to try new applications. <u>Nobody seemed to have found the use of these applications particularly difficult.</u>

Table 12. *Extract of participants' answers to the focus group question: «what kind of challenges are you still facing in implementing technologies in your classrooms? »*

Original answers in Italian	English translations
Una difficoltà che permane è la disinformazione. Vorrei che si formassero dei gruppi di insegnanti che sensibilizzassero gli altri [insegnanti] all'uso della tecnologia, oppure che ci fosse un insegnante che potesse formare gli altri insegnanti con molta serenità e naturalezza, per creare qualcosa assieme. Questo manca, assieme a qualche corso in più, e sarebbe opportuno investire in queste opportunità.	An existing difficulty is misinformation. I wish it was possible to create groups of teachers able to train other teachers in using technology, or have a teacher who could talk to other teachers and guide them in their learning process [of using technology] naturally and with serenity, to create something together. We [teachers] are lacking these learning opportunities together with additional training courses, and it would be good to invest on them.

Table 13. *Extracts of participants' answers to the focus group question: «is there anything else you would like to add on the implementation of technology in your classrooms? »*

Original answers in Italian	English translations
13.1) Secondo me coinvolgere studenti in diversi ambienti in una realtà virtuale non dovrebbe spaventare perché alla fine questi sono ambienti e attività che vediamo tutti i giorni. Mi spaventerebbe di più se io fossi uno studente e in questa realtà vedessi qualcosa di insolito, qualcosa che non potrei vedere nella realtà. Però finché mostriamo agli studenti tutto quello che possono vedere nella realtà, non vedo perché si dovrebbe avere paura.	13.1) I do not think that involving students in different Virtual Reality contexts should be scary because in the end there are environments we see on daily basis, I would be more scared if I were a student seeing a reality that I am not familiar with, something unusual that I do not see in the real world. But if we show students something they can see in the real world, I don't see why we should be scared of it.
13.2) Partecipare con l'avatar di un professore che anche sembra più giovane, a me non è dispiaciuta come cosa!	13.2) [Referring to an activity conducted with Virtual Reality] Participating with the avatar of a younger-looking professor was not too bad.

5. Discussion

Despite the discrepancy between the number of participants who completed the first questionnaire (27) and those who completed the second one (17), it can be said the qualitative information presented in Tables 2 and 3 and the positive trends that emerged from the standard deviations (σ) in Tables 6, 7 and 8 confirm the hypotheses underpinning this research. In the following discussion, results will be presented according to participants' reports on their experience with educational technology and their acceptance of it in light of future implementation. The latter parameter will further be measured according to perceived usefulness and ease of use.

In terms of teachers' experience with the use of digital tools, results showed that despite few participants used technology for language learning purposes, they generally rated their technological competence as intermediate. As shown by participants' comments in Table 2 (2.8, 2.10) this could be the result of the emergency teaching conducted during the Covid pandemic, which encouraged classroom experimentations with technology. When queried on whether the Italian school system encourages practices of educational technology, assertions included an increase in the use of applications for language learning purposes, with claims that they are limited to applications that are widely used (Table 2: 2.2, 2.13). Other teachers stated that digital materials have steadily been implemented in classroom settings since the rise of online teaching practices (Table 2:2.14). However, they admitted that teachers' full autonomy in using applications has not yet been reached. On the other hand, negative comments were given to old facilities, tool obsolescence and limited resource availability, which were said to slow down class adoption of digital tools (Table 3:3.2, 3.3, 3.4, 3.5). Moreover, participants complained about institutional preferences for traditional teaching methodologies where digital tool use is not contemplated, and emphasized that teachers lack training on how to efficiently use technology for educational purposes (Table 3: 3.6, 3.7, 3.8).

Further results showed that the majority of teachers agreed on the usefulness of educational technology (Table 4, 4.1). These results were confirmed by the post-course survey, as a high number of participants strongly agreed on the overall usefulness of the applications examined in the training (Table 6: 6.5) compared to the pre-course questionnaire (Table 4: 4.5). Moreover, participants strongly agreed that using technologies improved the quality and efficacy of their profession (Table 4, 4.5) and tended to concur that educational technology enables better classroom management (Table 4: 4.3) and quickens activity preparation (Table 4: 4.4). Similar results were shown in the post-training questionnaire (Table 6: 6.4, 6.5), suggesting that teachers' opinions on technology usefulness were boosted throughout the training. This is further confirmed by teachers' course evaluations, as they recognized the usefulness of the course and claimed that more training on educational technology should be provided to teachers given the importance of digital skills for their professional development.

Another factor which seemed to have influenced teachers' acceptance of educational technology was the awareness of digital affordances. Whilst the majority of teachers positively understood possibilities of high content personalization with digital tools, others remarked the infeasibility of such practices due to the nature of school contexts that do not foster such abilities amongst students (Table 9: 9.3). This suggests that awareness of technological affordances and their usefulness in educational contexts did not automatically imply participants' technological acceptance due to contextual variables and pedagogical beliefs.

As a last variable of acceptance, participants generally disagreed on the ease of use of technological platforms. They started the course with an overall confusion on how to implement classroom-based digital tools (Table 5: 5.4) and these feelings persisted in the post-training questionnaire (Table 7: 7.4). These judgements did not appear to be related to a lack of awareness of application affordances, nor to teachers' methodological inflexibility towards the technologies in use (Table 5: 5.3, Table 7: 7.3). Despite these results, it can be said that in comparison with pre-course survey results, less participants disagreed on the ease of use of the technologies examined in the course (Table 7: 7.4). This suggests that training teachers in educational technology might have positively contributed to lower their perceptions of the complexity of technological implementation. Moreover, a potential reason behind the perceived difficulty of using educational technology can be found in participants' responses to the focus group interview as they

reported the need of more time to apply the learned applications in educational contexts, which might explain a lack of progress in easing digital tool implementation (Table 9: 9.1, 9.2). To address this gap, one teacher suggested that experienced teachers could provide training in educational technology to create a learning community and share their expertise and professional experiences of using digital tools in language instruction (Table 12). These results further confirm the need to promote the integration of professional courses on educational technology in the Italian school context.

As of the methodological implications of educational technology for teaching practices, participants claimed that ground-breaking approaches are yet to be widely adopted in Italian schools, together with a lack of resource availability and the contextual facilities needed for their implementation (Table 9: 9.1, 9.2, 9.3). When assessing whether the applications examined in the course changed their professional practices, teachers reported that they helped them modify their perspectives on teaching in both positive and negative terms. In fact, positive comments were given to the awareness of having acquired methodological skills applicable to professional contexts, such as task-based classroom planning (Table 10: 10.1). Equal changes in perspectives were reported on less positive notes, as teachers stated they were scared about implementing digital tools as they eradicated efforts to promote school practices based on real-world tasks (Table 10: 10.2). Technology was therefore perceived as a distracting and impractical tool which prevented students from acquiring and situating language skills in real contexts. It is interesting to notice that while fear appeared to be a major drawback of accepting to use educational technology, other teachers claimed that real-like environments favored student' situated practices (Table 13: 13.1). Therefore, fidelity to real-like situations appeared to be an important factor in influencing teachers' acceptance of technological tools, as demonstrated by the example of a teacher enjoying avatar embodiment when using Virtual Reality for educational purposes (Table 13: 13.1, 13.2). Lastly, teachers did not report major difficulties in encouraging students to use the digital tools experimented in the course. On the contrary, they reported high levels of students' motivation and activity enjoyment in achieving linguistic goals (Table 11). This suggests that teachers' technological competences facilitated students' acquisition of digital tools through foreign language use, as they learned to use applications to achieve their goals.

In light of these results, it can be said that data collection confirmed the hypotheses of this research. In fact, information provided in the TAM questionnaires and the focus group interview proved teachers' high acceptance and increased willingness to adopt digital tools in their classes.

6. LIMITATIONS AND FUTURE DIRECTIONS

From methodological perspectives, the short duration of this training course prevented extending observations to specific educational contexts where the teachers could apply the competences acquired in class. Consequently, future investigations could involve educational institutions in gathering more data on teachers' acceptance and applications of digital tools, as well as on students' receptions. The number of participants to this type of study should also be expanded in order to increase data reliability. Moreover, this enquiry has only focused on professionals employed in non-academic contexts, while future research might also involve university professionals.

Additional results from this study have highlighted that thorough post-pandemic investigations should be conducted on the implementation of digital tools for educational purposes in Italian school contexts as they may provide new models for innovating

existing teaching practices. It is also believed that research should involve other educational fields since most of the literature has so far focused on compulsory instruction while no attention has been given to adult education or pre-school contexts. Additionally, research could focus on teacher's acceptance of immersive technologies such as Virtual Reality. In fact, after being briefly introduced to potential implementation of Virtual Reality in language learning, teachers appeared to be willing to learn more about this type of technology. All these aspects could help to diversify current research in teacher training with educational technology and highlight aspects of acceptance and usability that could better inform future instructional practices.

7. CONCLUSION

This study attempted to investigate the impact of a teacher training course focused on digital tool acceptance and implementation amongst teachers of Italian as a foreign language. This impact was assessed by investigating digital tool acceptance and usability amongst 27 teachers of Italian as a foreign language through quantitative and qualitative investigations. Results confirmed that exposure to pedagogical and theoretical aspects of teaching languages with digital tools resulted in higher acceptance of technology use. These results were strengthened by positive judgements on perceived usability and usefulness of educational technology, as well as in assertions of willingness to adopt digital tools in future teaching practices. Despite teachers' remarks on unreadiness to incorporate educational technologies in daily instructional practices and a lack of resource availability in the Italian school system, results demonstrated teachers' willingness to get involved in longer and more frequent training courses on educational technology in order to diversify their competences and knowledge of digital tools. Thus, the training course investigated in this study appeared to foster teachers' improvement and acquisition of new digital competences, classroom management and professional development. These results confirm that to foster the integration of digital tools in the school system, teachers must possess, and be willing to acquire, the digital competences necessary for supporting and innovating their educational modalities.

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