ORIGINAL RESEARCH PAPER

EFL Teachers' Professional Identity as a Predictor of Using Information and Communication Technologies: Practices, Challenges, and Solutions

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ABSTRACT

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Background and Objectives: Technology has been hugely integrated into foreign language classrooms and teachers are expected to take a proper position toward using it. Aside from extrinsic factors such as time, equipment, and training, there are also intrinsic factors residing within the teachers like beliefs, teaching experience, and willingness to use technology that can predict their perceptions toward integrating technology in the class. The latter seems to be the reason why teachers do not pay due attention to effectively integrating technology into their practice which is still insufficiently explored. This study aims to investigate the relationship between teachers' professional identity and their perceptions toward Information and Communication Technologies (ICTs) among Iranian EFL teachers and the practices, challenges, and solutions they consider.

Materials and Methods: In this mixed-methods research, out of all Iranian EFL teachers working in universities, language institutes, and schools, 174 were selected using convenience sampling. In the quantitative phase, the participants completed two questionnaires, i.e., Teachers' Professional Identity and Perceptions toward using ICTs. In the qualitative phase, 39 teachers with high levels of perceptions toward using ICTs who were selected to adopt purposeful sampling answered a structured interview. A standard multiple linear regression and frequency analysis were conducted to analyze the data in the quantitative and qualitative phases, respectively.

Findings: The results of standard multiple linear regression revealed that professional identity is a strong predictor of ICT use. Teaching experience, however, is not a determiner in this respect. Also, the result of the triangulation of the data from the survey and the interview showed no corroboration. The qualitative data analysis also indicated several common technological practices of teachers in their classrooms. The teachers' major challenges were categorized as teacher-related (e.g., lack of ICT literacy and professional training; lack of self-confidence and confronting technical difficulties; difficulty in class time management; and preparing technology-based materials), learner-related (e.g., lack of knowledge and being unfamiliar with ICTs; technology as a source of distraction; lack of interest in using technology and cooperation), and institution-related (e.g., weak internet connection; the unfamiliarity of the managers with the concept and denial of advantages of technology; their unsupportive behavior; traditional educational systems and policies; and lack of budget, facilities and equipment). They further suggested some solutions to address the technology-integration issues. They were three types: Solutions that can be handled by the teachers (e.g., increasing their own technological knowledge; being more disciplined, organized, patient, and self-confident; dedicating enough time and attention to their students' needs and selecting appropriate technologies for learners with differing learning styles, age, and interests; and supporting each other in handling technical difficulties). Other solutions can be managed by the institutions (e.g., providing up-to-date facilities and technological tools; holding training courses, workshops, and seminars to increase technological literacy; encouraging and supporting teachers in applying technologies and being innovative). Some other solutions offered by teachers can be addressed by policymakers (e.g., allocating the budget to the institutes and educational centers to provide appropriate technological equipment and high-speed broadband Wi-Fi).

Conclusions: The results of this study clearly demonstrated that high professional identity with all its components (i.e., subject matter, pedagogical, didactic) can positively influence the application of technology in class. Out of these three, teachers' didactical expertise showed a more significant role. This implies that managers and directors of study, besides equipping the educational centers and facilitating access to technology in class, are expected to provide teachers with pre-service and in-service training courses to empower them to be experts in teaching skills and strategies. Raising teachers' awareness about other aspects of professional teachers such as professional ethics/values and their knowledge base is also recommended. These challenges did not very much contradict those that resulted in similar studies in other parts of the world. Despite these problems, teachers continue practicing technology in their classes using a variety of ways like using software and applications, gadgets and tech tools, and the

internet as the major source of any technology-integrated activity. The results of this study could be more generalizable if more volunteers from all around the country took part in it.

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
76	0	5

مقاله پژوهشی

هویت حرفه‌ای معلمان زبان انگلیسی به عنوان پیش‌بینی‌کننده استفاده از فناوری اطلاعات و ارتباطات: کاربردها، چالش‌ها و راه‌حل‌ها

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چکیده

پیشینه و اهداف: فناوری تا حد زیادی در کلاس‌های درس زبان‌های خارجی وارد شده است و انتظار می‌رود معلمان بتوانند در استفاده از آن موضع مناسبی اتخاذ کنند. علاوه بر عوامل بیرونی مانند زمان، تجهیزات و آموزش، عوامل درونی مانند باورها، تجربه تدریس و تمایل به استفاده از فناوری معلمان می تواند استفاده آن ها از فناوری در کلاس را پیش بینی کند. به نظر می رسد عوامل درونی می توانند دلیلی بر عدم توجه کافی معلمان به ادغام مؤثر فناوری در تدریس باشند. این مسئله هنوز به اندازه کافی مورد بررسی قرار نگرفته است. این پژوهش با هدف بررسی رابطه بین هویت حرفه‌ای معلمان و درک آن‌ها از کاربرد فناوری‌های اطلاعاتی و ارتباطاتی در بین معلمان ایرانی زبان انگلیسی و شیوه‌ها، چالش‌ها و راه‌حل‌هایی که مدنظر آن‌ها است، انجام شده است.

روش‌ها: در این پژوهش مختلط، از بین تمامی معلمان زبان انگلیسی شاغل در دانشگاه‌ها، موسسات زبان و مدارس، ۱۷۴ نفر به روش نمونه‌گیری در دسترس انتخاب شدند. در مرحله کمّی، شرکت کنندگان دو پرسشنامه هویت حرفه ای معلمان و پرسشنامه درک استفاده از فناوری اطلاعات و ارتباطات را تکمیل کردند. در مرحله کیفی، ۳۹ معلم که سطح بالایی در استفاده از فناوری اطلاعات و ارتباطات در کلاس داشتند با روش نمونه گیری هدفمند انتخاب شدند و به سؤالات مصاحبه ساختاریافته پاسخ دادند. برای تجزیه و تحلیل داده ها روش رگرسیون خطی چندگانه استاندارد و تحلیل فراوانی به ترتیب در فاز کمّی و کیفی انجام شد.

یافته‌ها: نتایج رگرسیون خطی چندگانه استاندارد نشان داد که هویت حرفه‌ای پیش‌بینی‌کننده قوی برای استفاده از فناوری اطلاعات و ارتباطات است. با این حال، مشخص شد که تجربه تدریس در این زمینه نقشی ندارد. نتیجه بررسی داده‌های حاصل از پرسشنامه و مصاحبه مشابهتی نشان نداد. به علاوه، داده‌های کیفی، چندین شیوه متداول استفاده از فن‌آوری از سوی معلمان را در کلاس‌های درسشان نشان می‌دهد که در دو دسته ابزارها و برنامه‌های آموزشی (مانند ابزارهای چند رسانه‌ای، ویدئو پروژکتور، ...) و فعالیت های آموزشی مبتنی بر فناوری (ضبط صدا/ فیلم، بازی‌های رایانه‌ای، ...) طبقه‌بندی می‌شوند. چالش‌های عمده معلمان نیز به سه گروه تقسیم می‌شوند: چالش های مرتبط با معلم (نظیر فقدان سواد فناوری اطلاعات و ارتباطات و آموزش حرفه‌ای، عدم اعتماد به نفس، ...)، چالش های مرتبط با یادگیرنده (مانند عدم آگاهی و ناآشنایی با فناوری اطلاعات و ارتباطات،...) و چالش های مرتبط با نهادهای رسمی (ضعف اتصال به اینترنت، ناآشنایی مدیران با مفهوم و نفی مزایای فناوری و رفتار غیرحمایتی آنها،...). همچنین راه حل‌هایی برای رفع این چالش‌ها پیشنهاد شد که در سه دسته طبقه بندی شدند: راه‌حل‌هایی که مسئولیت انجامش برعهده معلمان است (افزایش دانش فنی معلمان، ارتقاء نظم، سازمان‌دهی،

شکیبایی واعتماد به نفس، توجه کافی به نیازها و سبک‌های یادگیری دانش‌آموزان،...). راه‌حل‌های دیگر (ارائه امکانات و ابزارهای فناوری به‌روز، برگزاری دوره‌های آموزشی،...) بر عهده مؤسسات آموزشی است. برخی دیگر از راه حل‌های ارائه شده از سوی معلمان باید مورد توجه قانون گذاران قرار گیرد (تخصیص بودجه برای مؤسسات و مراکز آموزشی برای خرید تجهیزات فَناوری مناسب، ...).

نتیجه‌گیری: نتایج این مطالعه به وضوح نشان داد که هویت حرفه ای بالا و تمام مولفه های آن (تخصص در موضوع، تخصص در ارزش آفرینی آموزشی، تخصص در تدریس) می تواند بر کاربرد فناوری در کلاس تأثیر مثبتی بگذارد. از بین این سه، تخصص در تدریس نقش مهمتری را نشان داد. این امر حاکی از آن است که از مدیران آموزشی انتظار می رود علاوه بر تجهیز مراکز آموزشی و تسهیل دسترسی به فناوری در کلاس، امکان برگزاری دوره های آموزشی پیش از خدمت و ضمن خدمت معلمان را نیز فراهم کنند تا آنان را در مهارت ها و راهبردهای آموزشی توانمند سازند. افزایش آگاهی معلمان در مورد سایر جنبه های حرفه‌ای معلمان نظیر اخلاق یا ارزش‌های حرفه‌ای و تقویت بنیه علمی آنها نیز توصیه می شود. این چالش‌ها چندان با چالش‌هایی که منجر به مطالعات مشابه در سایر نقاط جهان شد، تناقض نداشت. علی‌رغم این مشکلات، معلمان با استفاده از روش‌های مختلف مانند استفاده از نرم‌افزارها و برنامه‌های کاربردی، ابزارهای فناوری و اینترنت به عنوان منبع اصلی هر فعالیت فناورانه، به تمرین فناوری در کلاس‌های خود ادامه می‌دهند. از محدودیت های این مطالعه می توان به این نکته اشاره کرد که اگر داوطلبان بیشتری از سراسر کشور در آن شرکت می کردند، نتایج این مطالعه می‌توانست قدرت تعمیم‌پذیری بیشتری داشته باشد.

Introduction

We have always been involved in (re)shaping a *self* on the way to make our dreams come true. This attempt has its own influence on different aspects of our life. Therefore, our identity guides us to set goals, define objectives, and demonstrate the route to take [1]. As Beijaard et al. asserted, "identity is not something one has, but something that develops during one's whole life" [2, p. 107]; therefore, the process of developing one's identity takes time and experience of encountering various situations [3].

Teachers' professional identity, as one aspect of identity, deals with the pedagogical, social, cultural, and political contexts of the teachers. Scholars believe that most of the teachers' practices in the classes, from the decisions they make to the methods and techniques they adopt, and their rapport with the learners are part of the teachers' professional identity [2] [4]. According to Lai and Jin [5], one of the areas in which professional identity (PI) may play an important role is related to teachers' perception of and integration of technology for pedagogical purposes. Different aspects of teachers' professional identity may affect differently on teachers' approaches toward the integration of technology.

The adoption of Information and Communication Technologies (ICTs) has recently attracted the attention and interests of many teachers and educators since their role in the process of teaching and learning has been confirmed as beneficial [5-13]. EFL teachers are no exception. There are a number of benefits to the use of ICTs in language classrooms: fostering the visualization of abstract ideas [14], enhancing motivation, and self-confidence for the students [15], developing students' academic achievement [16], and establishing collaborative activities using ICTs [17]. However, the review of several research related to the integration of ICTs in the classroom context showed that there are not unanimous results in terms of the attitude and perception of the teachers' tendency to use technology in the classroom. The research indicated that generally teachers had either high perceptions toward the adoption of ICTs [18-21] or moderate level perceptions of it [22]. In terms of practical integration of technology into the

classroom, nevertheless, the literature shows that teachers do not usually integrate it into their teaching effectively [18][21-24]. Furthermore, other scholars [25][5] have underlined that a beneficial online learning environment that promotes professional identity requires "knowledge of both the affordances of pedagogies and technologies and of the nature of professional identity" [25, p. 424].

Research also revealed that there are two factors affecting the use of technology in language classrooms: extrinsic and intrinsic factors. The former refers to school climate and culture and all the available resources like training courses, educational planning, and technological equipment [5] [26-28]. The latter, however, includes the beliefs and value systems of the teachers about teaching, learning, digital literacy, and self-efficacy beliefs about technology use [5] [29-31]. One of the barriers to the development of teachers in extrinsic factors (e.g., the supply and adoption of technology), as mentioned by [5], is related to intrinsic factors (e.g., their belief or professional identity). In other words, teachers' perception of ICTs is believed to be related to their beliefs and perceptions about language learning and identity in the context of their profession.

The facilitating and motivating role of technology integration in the educational process has triggered most teachers around the world to try to adopt them in their classes. However, there are still teachers who are not willing to integrate it into their teaching due to some barriers that prevent them from benefiting from the affordances of technology in their classes. According to Lai and Jin [5], one major reason behind teachers' (un)integration of technology may lie in the teachers' professional beliefs and identity. It seems worthwhile to investigate how these two variables are correlated and examine the

barriers in order to encourage teachers to adopt and integrate technology into their pedagogical practices.

This study is conducted with the purpose of examining whether the components of professional identity can predict Iranian EFL teachers' perception of ICT. It further aims to investigate whether teaching experience has any effects on teachers' use of ICT. Moreover, the common technology-integrated practices, challenges, and solutions of Iranian EFL teachers are explored thoroughly.

To fulfill the above purposes, the following research questions were guided in this study:

o Do different components of Iranian EFL teachers' professional identity predict their perception toward ICTs?

o Does teaching experience have any significant effect on teachers' perceptions toward ICT?

o How do the teachers' use of ICT corroborate with how they perceive themselves as ICT users?

o What are the common technology-integrated practices among Iranian EFL teachers?

o What are the common technology-integrated challenges and solutions proposed by Iranian EFL teachers?

Review of the Related Literature
Teachers' Professional Identity

Literature has witnessed a few theoretical frameworks to measure the professional identity of teachers. Hanna et al. [32, p. 8] investigating the quantitative measurement instruments reported that scholars have adopted such theories as "Erikson's Theory of identity development [33]; Bourdieu's theory of social capital [34]; and the expectancy-value theory [35]". The instruments by Beijaard et al. [2] and Lamote and Engels [36] are claimed to be inspired by the theoretical works of Bromme

[37] and Puurula and Löfström [38], respectively.

These theoretical issues viewed and defined professional identity differently. According to Beijaard et al., teachers' PI is a combination of "the teacher as a subject matter expert, the teacher as a pedagogical expert, and the teacher as a didactical expert" [2, p. 750]. Pennington considered teacher identity as "a construct, mental image or model of what 'being a teacher' means that guides teachers' practices as they aim to enact 'being a teacher' through specific acts of teacher identity" [39, p. 17]. More recently, identity is considered as a dynamic concept that is affected under different circumstances. Identity is a dynamic phenomenon that is constantly evolving rather than being stable [40]. Richardson and Watt also regard identity as "an elusive dynamic and multidimensional construct that changes shape depending on the theoretical lens through which it is observed" [41, p. 38]. When professional identity is studied within the pedagogical contexts, teachers are the first agents to consider. Considering teaching as a socially constructed activity [42], it is of no surprise that teacher identity is, according to Bakhtin [43], an ongoing process of relationship between teacher and others. That is why Lasky defined teacher professional identity as "how teachers define themselves to themselves and to others" [44, p. 901]. Alsup [45] even finds an interplay between the characteristics of good teachers and their identity development. Meihami and Werbinska [46] also investigated the role of action research to enhance teachers' professional identity. With the changes in the ecosystem of teaching and the considerable integration of technology, the need for teachers to adapt themselves and their teaching practices to these changes emerges. This can lead to changes to the identity they have already established. Teachers, as Valentyn [47] asserts, tune into technological development in their teaching practices and take different roles as mentors, coaches, supporters, guides, and motivators which can help develop the teachers' identity.

Information and Communication Technologies (ICTs)

ICT is usually used with the words, 'computer' and 'technology'; but the terms 'digital technology' or 'Web 2.0' coined by Ertmer et al. [48] and Sadaf, et al. [49] can be the best representative of it. Toomey as cited in Lloyd [50] defined ICTs from the teaching and learning aspect as different technologies including hardware, software applications, and connectivity that are used to access, gather, manipulate, present, and communicate information. The significance of ICT is that it integrates multimedia, communication, and computer-based technologies considering their dynamicity and increasing usage.

Studies on ICTs are of several types. Some are in relation to the integration of ICT with education and its effectiveness [51-54] and some others have been conducted to identify teachers' perceptions of and beliefs about using ICTs [55] [6-8], [10-11][13], the majority of them revealed both positive impacts and perceptions toward ICTs integration. Also, there are other correlational studies that have focused on the relationship between teachers' beliefs about ICT integration and other variables like their pedagogical beliefs [48] [56-58] indicating a mutual relationship between teachers' pedagogical beliefs and their use of technology.

Regarding the effect of teachers' years of experience, their gender, age, and prior technology training, different studies have been performed indicating contradictory findings. For example, Lam [7] found that all the above-mentioned variables do not affect teachers' use of technology. Also, Yang and Huang [13]

reported a positive relationship between technology-integrated teaching activities, teachers' prior technology training, and the school context, while less experienced teachers showed more interest in using technology in their classes. In addition, Korthagen [59] found that experience had a reverse effect on teachers' willingness to use ICT tools. In another study, Rahimi and Yadollahi [54] indicated a negative correlation between using ICTs and teachers' experience, age, and computer anxiety, and a positive one with academic degrees, and computer literacy and ownership, while gender and attitude showed no effect on integrating ICTs. Chung [55] found a strong correlation between teachers' beliefs in implementing technology and their technological training, proficiency, and context; however, regarding teaching experience and age, results were varied. Moreover, Karakaya's study [51] revealed no significant impact of age and gender while academic degrees and teaching experience had a strong effect. In contrast, Scrimshaw [60] found that gender affects teachers' ICT integration as male teachers use technology more than females.

In addition, some major challenges in using ICTs by teachers were reported to be the lack of access to ICT tools and technological training [61-62], lack of teachers' confidence and technological skills [63], large classrooms, lack of technical support and ICT skills of both teachers and learners, and teachers' conservative attitudes toward using ICTs [64], and most importantly, lack of teachers' enough time to cover the syllabus was considered as an important issue [65]. Furthermore, the intended ICT tool that was mostly used by teachers was PowerPoint while utilizing other tools varied from teacher to teacher. Al-Senaidi et al. [65], in support of Ertmer [66], and Snoeyink and Ertmer [67], identified two types of barriers: external, such as lack of technology

access, resources, and support, and internal barriers like teachers' conservativeness, lack of confidence and knowledge about using technology. They believed that most teachers are not ready to accept and implement technological tools and do not have enough awareness of the benefits of ICTs. Additionally, based on ICT barriers' categorization by Veen [68], researchers categorized these barriers into two levels of individual (e.g., lack of time, access, and technology use training) and institutional (e.g., traditional type of teaching, lack of time, and understanding the benefits of technology). In another study by Groff and Mouza [69], ICT barriers were categorized into the Context (e.g., school), Innovator (e.g., teacher), Innovation (e.g., project), and Operator (e.g., student) suggesting that training teachers to implement ICT and both peer and institution support can be effective in resolving these barriers.

Literature reveals that most of the studies have just focused on one aspect of ICTs like the effectiveness of utilizing ICTs, ICT integration barriers, benefits of using ICTs, and teachers' perceptions and beliefs about the use of ICTs. Few studies have explored the relationship between perceptions toward ICTs and other variables [57-58]. More specifically, there is little literature to deal with teachers' identity, as instances of intrinsic factors, in the development of the perception of the teachers toward the adoption of ICTs as an extrinsic factor in language classes effectively. Moreover, there is a paucity of research [54] regarding how teachers utilize ICTs effectively in their classes, the problems they often face while trying to integrate technology into their practices, and providing solutions or strategies to handle the existing challenges in the context of Iran. In addition, there are contradictory findings in different studies exploring the effect of variables such as teachers' years of

experience on their perceptions toward using ICTs and therefore further research is needed in this area as well.

To fill the above-mentioned gaps, this study aims to examine whether the components of EFL teachers' professional identity are correlated with their perception toward ICTs and to investigate if teachers' experience has any effects on their perceptions toward the use of ICT. It further explores the common technology-integrated practices, challenges, and solutions, and whether and how Iranian EFL teachers integrate these practices into their pedagogical context.

Method

Participants

174 Iranian EFL teachers at universities, institutes, and schools were the participants of this study. According to Freeman's [70] definition of the level of experience, they were divided into novice (less than three years) and experienced (five or more years). They were from different age groups from 20 to above 40 years including 108 female (62%) and 66 male (38%) participants. For the quantitative phase of the study (administering the questionnaires), teachers were selected based on a convenience sampling method out of those who volunteered to take part in the study. This sampling method was adopted since we aspired to collect data from larger sample of teachers. Moreover, selecting the samples voluntarily can enhance quality and the originality of the data and the result. For the qualitative phase, the participants answered an online structured written interview regarding their practices and challenges of technology integration and suggested some solutions.

Instruments

Teachers' Professional Identity Inventory

The instrument, developed by Beijaard et al. [2], was used to measure the teachers' perception of their professional identity. The questionnaire encompasses the features of teachers as being experts in three fields: subject matter - "a teacher's professional knowledge base" [2, p. 751], pedagogical – "the ethical and moral features of the teaching profession" [2, p. 751], and didactic - the planning, execution, and evaluation of lessons" [2, p. 752]. The responses to this 14-item questionnaire are on a Likert scale ranging from *strongly agree* to *strongly disagree*. Cronbach's alpha showed the reliability index of the instrument as 0.8.

Perceptions towards ICTs Scale

Developed by Baş et al. [71], the Perceptions toward ICTs Scale measures EFL teachers' perception toward the adoption of information and communication technologies in their teaching-learning process. The survey has 25 items, and the teachers respond by choosing one of the choices from strongly agree to strongly disagree. The construct includes three components of attitudes, usage, and belief. The reliability index was calculated as 0.9 using Cronbach's alpha.

The online interview

This was a four-item structured interview being held online in written mode. This type of interview was adopted as we were constrained in terms of the accessibility of the participants and for the straightforward and efficient analysis of the data, although it limited the number of questions and reduced the depth of the answers. The first interview question was asked to triangulate the responses collected using the questionnaires. While the second question asked the technological practices that teachers with high ICT perception used in their

classes, the third and the fourth questions respectively inquired about the challenges and the related solutions in adopting technology.

Procedure

To collect the data, an online call was shared for participants in different EFL teachers' groups for those who were interested to participate in the study. For those EFL teachers who did not have access to social media, the two questionnaires were administered in person.

In the quantitative phase, the questionnaires were used to investigate the relationship between teachers' professional identity and their perception of using technology in their classes. The data gathered in this phase were analyzed statistically using SPSS. To triangulate the data, in the qualitative part of the study, all participants were asked to answer the first question of the interview. However, those participants who scored high on the ICT scale were invited to answer the second, third, and fourth interview questions to explore their practices, challenges, and solutions to adopting technology.

Design

This study is an explanatory sequential mixed-methods research. Based on Creswell and Clark [72], in this type of research the purpose is to use "a qualitative strand to explain initial quantitative results" [72, p.133]. In the quantitative phase, two questionnaires were administered to find out if teachers' professional identity is correlated with their perceptions toward ICTs. In the qualitative phase, an online structured interview was used to measure the teaching practices using technology, and the challenges and solutions of integrating ICT in the process of language teaching.

Results and Findings

To answer the first research question, a standard multiple linear regression was conducted, and the teachers' professional identity components, that is, subject matter field, didactical field, and pedagogical field were entered into a regression model to investigate whether they could predict teachers' ICT use (Mean = 99.47, SD = 13.015). Table 2 shows the descriptive statistics of the predictors (i.e., subject matter field, didactical field, and pedagogical field) and the criterion variable (i.e., use of ICT) in the regression model.

The required statistical assumptions for conducting multiple regression were evaluated and the results showed no violations of normality, linearity, and homogeneity of variance of residuals. The Durbin-Watson test of autocorrelation of residuals indicated their independence (it is between 1.5 and 2.5, see Table 4). Likewise, there was no collinearity in the data with the condition index lower than 15 (see Table 1), as recommended by Tabachnick and Fidell [73]. Also, all the VIF estimates were less than the recommended value of 10 and there was no sign of multicollinearity. Moreover, all the skewness and kurtosis measures were between -2 and +2, so the normality assumption was met.

Table 4 and Table 5 show that R is significantly different from zero, F (3,169) = 992, p = .00, and R2 at 0.946, demonstrating the significance of this regression model. The adjusted R2 value of 0.945 indicates that 94% of the variability in teacher professional identity is predicted by subject matter, didactical and pedagogical field. This reveals that teacher professional identity, as a whole, predicts 94% of the variance in teachers' perception of ICT.

As can be seen in Table 5, the subject matter field (B = 2.1, S.E = 0.13, β = .35, t = 16.27, p =.00), didactical field (B = 1.7,

S.E = 0.11, β = 0.4, t = 15.79, p = .00) and pedagogical field (B = 2, S.E = 0.12, β = 0.387, t = 15.9, p = .00) all are found to be the significant predictors of teacher perception of ICTs. In addition, the Standardized Coefficient reveals that, among the components of professional identity, the didactical field has the strongest relationship with the teachers' use of ICT.

To answer the second research question, that is, whether teaching experience had any significant effect on teachers' perception of ICT, the scores of both novice and experienced teachers on the Perceptions toward ICTs Scale were examined based on their frequency. The teachers whose total scores on the ICT scale were at the percentile value of 70 and above and teachers with the percentile value of 19 and below were considered as high and low ICT users respectively. It was revealed that from 124 experienced teachers only 30 (24%) had high and 18 (15%) had low perception toward using ICT. Moreover, from 50 novice teachers, 9 (18%) gained high scores and 16 others (32%) scored low on this questionnaire. Totally, most of the participants gained medium scores (60%) from the ICT questionnaire, irrespective of whether they are experienced or novice. As a result, teaching experience cannot be the only determiner of teachers' technology integration.

Table 1: Collinearity diagnostics

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions			
				(Constant)	Subject Matter field	Didactical field	Pedagogical field
1	1	3.974	1.000	.00	.00	.00	.00
	2	.012	18.396	.29	.10	.00	.62
	3	.009	20.873	.46	.83	.01	.01
	4	.005	29.010	.24	.07	.99	.37

Table 2: The descriptive statistics of predictor and criterion variables in regression equation

	N	Min	Max	Mean	Std. Deviation	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
ICT's	174	60	125	99.47	13.015	-.044	.184	-.307	.366
Subject-Matter	174	9	20	15.49	2.120	-.123	.184	-.232	.366
Didactical	174	18	30	24.99	2.916	.092	.184	-.659	.366
Pedagogical	174	9	20	15.95	2.429	-.123	.184	-.227	.366
Valid N (listwise)	174								

Table 3: Test of significance of regression equation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26249.465	3	8749.822	992.897	.000
	Residual	1489.298	169	8.812		
	Total	27738.763	172			

Table 4: Test of independence of residuals of simple regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.973	.946	.945	2.969	.946	992.897	3	169	.000	1.969

Table 5: Regression coefficients of regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-9.953	2.081		-4.783	.000		
1 Subject Matter field	2.132	.131	.356	16.276	.000	.666	1.502
Didactical field	1.772	.112	.406	15.799	.000	.481	2.077
Pedagogical field	2.021	.127	.387	15.903	.000	.535	1.869

In the qualitative phase, to answer the third research question, the results of teachers' ICT scale were triangulated with the results of the first interview question inquiring whether they perceive themselves as high or low technology users in the class. Results revealed that 42% (n=39) of the teachers were high ICT users and 47% (n=34) were low technology users. Furthermore, the teachers' responses to the first interview item were also analyzed. Out of 174 who participate in the study, 10% (n=17) remain the first item of the interview unanswered, 54% (n=85) considered themselves as high users of technology, and 21% (n=33) perceived themselves as low. As can be seen above, while the percentage of high and low users of ICT were rather equal on the scale, the number of teachers who perceive themselves as high users of ICT in the interview, was significantly more than those who perceive themselves as low users. This shows that the results are not well corroborated.

The fourth research question inquiries about the common practices of EFL teachers. Content analysis was used to extract the most frequent content and report it. First, all the answers were saved in the form of a written corpus. The researcher, then, scanned all the answers and counted the instances of the teaching practices presented by those interviewees who acknowledged the use of technology in their classes. The answers were tabulated along with the frequency and the related percentage to be analyzed. The results indicated that the most

common representation of integrating technology that Iranian EFL teachers adopt in their classes were classified under two categories of educational gadgets and applications, and technology-based educational activities. The educational gadgets that the teachers most commonly used were multimedia, cellphones, Over-Head Projector (OHP), laptops and computer devices, and interactive whiteboards; while the applications they mainly applied in their classes were PowerPoint, social media (e.g., Instagram, YouTube, Telegram, Email, …), pdf, and less commonly used applications were automated feedback tools, Adobe Connect, Grammarly, online dictionaries, Kahoot, Padlet, Dojo, Word wall, AI Apps (e.g., interactive bots), and Chat GPT. The technology-based educational activities teachers referred to were recording audio/videos, gaming, using songs and pictures, searching online, digital storytelling, vodcasting, podcasting, doing exercises and quizzes, and translating.

The fifth research question was investigated analyzing the corpus of answers to the online interview. The content analysis was adopted to analyze the data as well. The question asked about the challenges and suggested solutions for integrating technology into their classes. The challenges were categorized into three types: learner-related, teacher-related, and institution-related challenges. The major teacher-related challenges were related to teachers' lack of ICT

literacy, training, and lack of self-confidence when confronting technical difficulties in their classes. Moreover, most teachers have problems in managing their time to "make a balance between using technology in class and covering students' textbooks" thoroughly. Also, preparing technology-based materials necessitates a great amount of time and energy and can be a burden for teachers. Some asserted that it "may disrupt the flow of a lesson and also may cause frustration for both teachers and students". Additionally, some teachers acknowledged that "managing and controlling the classes including heterogeneous students [with respect to their degree of interest and familiarity with technology] is not an easy task to do". The learner-related challenges as reported by teachers contained their lack of knowledge and being unfamiliar with ICTs, specifically adult learners. Some others mentioned that technology "maybe a source of distraction for students who misuse it for non-educational purposes". In addition, some students are uninterested in using technology and not cooperative enough since they do not believe in the benefits of using technology. The institution-related challenges mainly included weak internet connection, the unfamiliarity of the managers with the concept and denial of ICTs advantages, their unsupportive behavior, traditional educational systems and policies, and lack of budget, facilities, and equipment.

The solutions suggested by the teachers were classified into three types as well: ones which can be handled by the teachers, those which can be managed by the institutions, and others which can be addressed by policymakers. The teachers' role in classroom technology integration was multifaceted as mentioned by themselves. Teachers not only have to increase their own technological knowledge and literacy, but they should also

consider many factors in this regard. According to the solutions they suggested in the interview, teachers should be more disciplined, organized, patient and self-confident. They should dedicate enough time and attention to their students' needs to be able to motivate and engage them by using the type of technologies appropriate to their student's learning styles, age, and interests. Teachers can even ask tech-savvy students to help and collaborate in tackling technical problems during the class. They can save and manage class time by familiarizing students with the technology they are going to use before class time. They are responsible for increasing students' interest and awareness by talking with the students about the advantages of using technology. Teachers can also support each other in handling technical difficulties. Other solutions were related to the institutions to provide up-to-date facilities and technological tools including free broadband Internet connection; hold training courses, workshops, and seminars to increase technological literacy among both teachers and learners; encourage and support teachers in applying ICTs and being innovative. Also, requesting the expansion of class time was another solution suggested by some teachers. Furthermore, a few teachers referred to the responsibility of policymakers to alter their attitudes towards internet access policies in Iran and asked for the allocation of budget for the institutes and educational centers to provide appropriate technological equipment and free broadband Wi-Fi.

Discussion

Integration of technology in EFL classes is a new trend but the way it is related to the teachers' individual differences like their identity needed further attention. This study revealed that the teachers' professional identity and their

perception of ICTs are strongly correlated. The results corroborated the findings of the studies on how extrinsic factors like school climate and culture and resources [5] [26-28] and intrinsic factors like beliefs and value systems of the teachers [29-31] are related. It is revealed that the components of professional identity - the subject matter, pedagogic, and didactical - are strong predictors of teachers' perception of ICTs. This is in line with studies done by Ding et al. [74], Ertmer et al. [48], Sang et al. [57], and Tondeur et al. [58] which indicated a strong correlation between beliefs about the use of technology and the teachers' pedagogical beliefs. The results of this research further indicated that among the various components of professional identity, the didactical field could have a significant contribution in predicting teachers' perceptions toward using ICTs. Therefore, it can be argued that practitioners who improve their professional identity would be admittedly more motivated and confident in using ICTs in their classes.

A descriptive investigation of the effect of teaching experience on teachers' perception of ICTs demonstrated that the level of teaching experience has no significant effect on their use of ICT in the classes. That is, using technology is not related to the years of teaching experience. This finding is in line with the findings of Lam [7] and Mahdi and Al-Dera [75], stating that teachers' years of experience have no effect on teachers' use of technology and is in contrast with Karakaya's study [51] in which there was a strong effect of teaching experience on using ICTs. Contradictory findings reveal the need for further exploration of this issue in different contexts with other participants.

The third research question was a methodological triangulation of the data collected from the scale and the first item of the interview. It was indicated that few teachers acknowledged themselves as low users of technology answering the interview question while their scores on the ICT scale revealed a higher percentage of teachers as low ICT users. Also, little match was found regarding the number of users with high perception. Teachers explicitly perceive themselves as more ICT users than what is implicitly resulting from the answers to the items of the scale. These findings can be justified as teachers psychologically saw their performance more idealistically than what they practiced.

Regarding the fourth research question which inquired about the common practices of EFL teachers, social media and power points were among the most frequent educational gadgets while applications and recording audio/videos and gaming were reported as mostly used in technology-based educational activities. This is very similar to Ding and Glazewski's study [74] in which PowerPoint slides and videos were reported to be used mainly for various content-specific purposes. It is also in accordance with Rahimi and Yadollahi's findings [54], which indicated the willingness of teachers to use mostly simple devices and applications not to take a great amount of their class time.

Examining the teachers' responses regarding the challenges and solutions revealed that each of the three types of challenges and solutions (teacher-related, learner-related, and institution-related) included some internal factors in addition to the external ones which is like the classification of Al-Senaidi, et al. [65], Ertmer [66], and Snoeyink and Ertmer [67]. These internal factors are related to teachers, learners, institutions, and even policymakers' beliefs about technology and its effects on improving learning. Specifically, teachers' lack of confidence or their conservative attitude towards using technology can be related to their beliefs and professional identity. In the same way, learners' acceptance, or avoidance

of applying ICTs can be rooted in their beliefs about its benefits or their lack of self-confidence. Furthermore, those institution managers and policymakers who reject technology in favor of traditional teaching methods do not believe in the advantages of using ICTs. Thus, it can originate from individuals' views, beliefs, and identities. Furthermore, the classifications of technology-integrated challenges as context, innovator, innovation, and operator [69] and individual and institutional [68] have more or less referred to the same challenges as that of this study. The solutions proposed by teachers in this study are partly like the implications provided by Al-Senaidi et al. [65], suggesting that institutions to provide technical support and training, and allocate more time for teachers to develop their technological skills. This study also indicates the same challenges that Rahimi and Yadollahi [54], and Maru et al. [63] referred to in their studies. Rahimi and Yadollahi [54] stated that teachers found ICT use as an extra burden, and they mostly used simple applications to save time, and Maru et al. [63] referred to lack of ICT literacy and support as external factors and motivation and confidence besides inadequate access to the internet as the main challenges. The solutions that teachers proposed in this study were in accordance with Rahimi and Yadollahi [54], in which emphasis was on raising teachers' awareness of the values of technology integration, empowering teachers' technical and professional skills, and colleagues' support. Additionally, Karakaya [51], indicated the need for holding technology training courses for teachers.

Overall, the results of the qualitative analysis were similar to those of studies in the literature in terms of the challenges teachers perceive to encounter in their profession in the adoption of technology in class. Like the results of this study, the literature is rich with the challenges

like access to ICT tools and technological training [61-62], lack of teachers' confidence and technological skills [10], lack of technical support and ICT skills of both teachers and learners and teachers' conservative attitudes toward using ICTs [64].

Conclusions

Using technology in class is not all a matter of having the amenities and equipment, other factors are in play that can enhance its practice by the teachers. Intrinsic factors such as the belief and identity of the teachers can also act as determiners. The results of this study clearly demonstrated that professional identity with all its components can influence the application of technology in class. Above all three, teachers' didactical expertise can have a major role. This implies that managers and directors of study, besides equipping the educational centers and facilitating access to technology in class, are expected to provide teachers with pre-service and in-service teacher training courses to empower them to be experts in teaching skills and strategies. Raising the teachers' awareness about the other aspects of professional teachers such as professional ethics/values and their knowledge base is also recommended. Further follow-up classroom observations, as Warschauer [76] proposed, to ensure they properly apply what they have learned in training programs is deemed necessary.

In terms of the challenges teachers face, it seems that the Iranian EFL context is not so much different. Teachers as thriving agents of any educational setting suggest solutions which are on the part of the school officials, policymakers, and the teachers themselves. Challenges like learners' and teachers' lack of ICT literacy, training, lack of self-confidence and distraction when confronting technical difficulties in their classes, balanced classroom

time management, availability of broadband connection, managers' unsupportive reactions to the use of ICT and the traditional and educational mindset and system are all involved in making barriers to integrate technology into classroom practices. Despite these problems, teachers are recommended to continue practicing technology in their classes using a variety of ways like using software and applications, gadgets and tech tools, and the internet as the major source of any technology-integrated activity. Moreover, school officials and policymakers are recommended not only to provide technological facilities and broadband connections, but also to hold training courses and workshops and encourage innovations to apply ICT in their classes. The results of this study could be more generalizable if more volunteers from all around the country took part. Out of three major solutions for technology integration in language classes, government-related, institution-related, and teacher-related factors, the one with utmost importance is the teacher-related one which implied that any change in the teachers' perception starts from inside, and improving teacher's professional identity is a case in point.

Author Contribution

M. Zarrabi: Conception and design, acquisition of data, analysis and interpretation of data, drafting of the manuscript, statistical analysis, and administrative, technical, or material support

M. Mohammadi: Acquisition of data, drafting of the manuscript, critical revision of the manuscript for important intellectual content, and supervision

Z. Seifoori: Critical revision of the manuscript for important intellectual content, administrative, technical, or material support, and supervision

Conflict of Interest

The author has no conflicts of interest.

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