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Original Article

Developing and Validating a Scale for Assessing Iranian EFL Teacher Educators' Perspectives towards Twenty-first Century Skills

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Abstract

Teacher education had been addressed in various studies. Although many studies attempted to measure teachers' twenty-first century skills, there is still a gap that prompted us to investigate the area from the teacher-educators' perspectives. To accomplish the purpose, this mixed-method study aimed to develop and validate a scale to assess Iranian EFL teacher-educators' perceptions of twenty-first century skills. To this end, the developed scale was answered by 15 teacher educators through a semi structured interview. After transcribing and analyzing the interview responses, the researcher developed a tentative version of a twenty-first century skills scale which included 26 items. Finally, the researcher distributed the scale among 351 EFL teacher educators. The results of the Exploratory Factor Analysis indicated that the scale enjoyed high validity and reliability. The extracted factors making up three components included agreement, challenges, and implementation. Based on the rotated component matrix, some changes in the organization of the items were made. This study has implications for language teachers, and teacher trainers to design teacher training courses as well as professional development programs.

Keywords: EFL Iranian Teachers, Professional Development, Scale, Teacher Education, Teacher Educator, Twenty-first Century Skills

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1. Introduction

The skills you need to be successful in your job, college and life are called twenty-first century skills. All students need to learn skills to do well in the twenty-first century, whether they want to work right away or go to college. The things needed for jobs and abilities are changing over time. Darling-Hammond (2010) stated that schools have new goals. They need to educate students for jobs that don't exist yet. These jobs involve making new products and solving problems that we don't know about yet. People also use technologies that we haven't invented yet. Wagner (2008) asserted that schools are still the same, but the world around them is different now. Our schools are doing well. Old tests that used to be good are now out of date and not useful anymore.

Our world is changing at an alarming rate, especially in terms of technology and information, requiring students to develop the skills they need to compete effectively in an increasingly flattened global society (Darling-Hammond, 2010; Friedman 2007; Pink, 2009; Wagner 2008). Adapting to changing times is essential to our success, and the workforce will begin with public education. According to Moore (2009), teachers no longer have the opportunity to teach twenty-first century skills because this is a new mandate.

In recent decades, education has undergone a good deal of change. Various reforms, initiatives and mandates have influenced how we educate our learners. A focus on applying abilities for learners in the twenty-first century is essential in preparing learners for the future, as this is a reaction to changes taking place right before our eyes. Education must concentrate not only on information transmission, but also on the development of vital abilities: critical thinking, cooperation, communication, and creativity.

In addition, pre-service training services are required to train teachers to consider how to teach all students, and how to adapt effective teaching methods to the needs of each learner. To this end, teachers need to link their second-language acquisition coursework and instructional methods to experience in-field training.

Therefore, considering the leading role of teacher educators and its impact on learners' achievements as well as the importance of implementing twenty-first century skills in language classrooms, this study intends to investigate teacher educators' perceptions regarding twenty-first century skills, their implementation, and their effect on effective teaching practices. To create a twenty-first classroom structure, teachers must have relevant training and guidance, and use instructional practices of the twenty-first century to provide

the skills and knowledge they need. The vital nature of the need for this change in instruction gives the impetus to determine what skills and knowledge the district instructional leader will acquire to lead teachers in such a significant shift.

2. Literature Review

Researchers have studied (Hung, 2017; Jeong, 2017; Nouri, 2016) how students are not as interested in traditional ways of teaching. Some schools are trying new things to meet modern challenges, but not all classrooms are changing the way they teach and learn. In the past 50 years, many industries have successfully reinvented themselves, but schools have not been able to do the same. Even when they try, they often fail for reasons that experts have predicted. Some schools are still designed like factories, where everything is done a certain way and everyone has to follow the same rules. This was a way of organizing things that worked well in factories during the Industrial Revolution. Many students still learn traditionally. They go to school, sit in a classroom, and use mostly pencils and paper. The teacher is the main source of information and they learn different subjects like math and science. Students stay in school for about 15 years and their age determines what they learn. If schools don't change how they teach and use technology, students might not do well and may drop out of school. Students are not unable to learn, but they don't like learning in the usual school system where they just sit and listen to teachers. Companies are now using information more actively, while in school students are told what to learn and how to learn it.

There has been good research into the increasing disengagement of learners from traditional teaching models, methodologies, and practices (Hung, 2017; Jeong, 2017; Nouri, 2016). Although there are promising examples of educational creativity (Bellei & Morawietz, 2016; Pllana, 2019) that emerged around the world in response to new challenges, the teaching and learning cycle in all our classrooms is not evolving consistently. For the most part, the large-scale reinvention of many other sectors in the past 50 years has not been successfully realized by schools and classrooms, including schools that may have tried to do so but failed for predictable reasons (Cuban, 2008; Pink, 2009; Shattuck, 2007). Many schools are still rooted in a factory system based on industrial-world structural logic optimized for compliance and standardization (Sahlberg, 2011). Most students are still taught in a traditional school model where the classroom is the primary learning spot, the

school day is the highest educational day, the majority of the activities are paper and pen or pencil oriented, the instructor is the primary source of information, the curriculum is made up of different subject areas, physical spaces reflect these conventional disciplines, and students are expected to remain on linear age-appropriate courses for some 15 years (Grose, 2013).

Unless the familiar traditional teaching methodologies and industrial models that prevail today in most schools remain the same as they have in the last century, and classroom teachers and education systems cannot adjust to our globalized, post-modern technology-rich worlds, risk student involvement remains and dropout levels could be further compromised. It is not because students are unable to learn, but because they do not want to learn inside current traditional school systems that position them as passive information recipients in an environment where the companies become involved users of their own information.

To connect teaching and learning in the classroom involves addressing the needs of students, and preparing students for the kinds of learning and work of postmodern society. Considering this, the role of teacher education programs is highlighted. Hökkä et al., (2017, p. 36) stressed that "teacher educators have been seen as crucial in enhancing teacher quality, developing schooling, supporting economic development, and safeguarding a socially coherent society". Cochran-Smith (2000), for instance, highlighted that "teaching and teacher education are unavoidably political enterprises and are, in that sense, value-laden and socially constructed. Over time, they both influence and are influenced by the histories, economies, and cultures of the societies, in which they exist, particularly by competing views of the purpose of schools and schooling. Like it or not, more of us in teacher education and in the policy communities will need to engage in these public and political debates if we are to have a real voice in framing the questions that matter for the future of teaching education". (p.16.).

Killion and Roy (2009) indicated that when teachers lack the knowledge and skills to teach students effectively, school districts need to provide professional development (PD) to foster the knowledge and skills of teachers. Killion and Roy (2009) described PD as "a systematic, sustained, and intensive approach to enhancing the effectiveness of teachers and principals in increasing student achievement" (p.18). PD is a key component in addressing vocabulary, expertise, skills and attitudes of teachers in general education (Gándara & Santibañez, 2016).

Research has shown that teachers' beliefs about teaching and learning can affect how they teach. If they have strong beliefs that don't allow for new ideas, they may only teach in one specific way. This can limit the learning opportunities for their students. Borg (2001) looked at a lot of research about teaching foreign and second languages. He found that teachers have very different opinions about how to teach English. After analyzing 64 scholarly works from the field of foreign and second language teaching, Borg (2001) reported that there is a wide disparity between the views of teachers about (English) language education. He noted that teachers with far more years of teaching experience agree that grammar must be taught through explicit instruction, while less experienced teachers are primarily in favor of teaching grammar by integrating it into the lesson. Researchers claim that teacher training programs have failed to resolve this gap, as they have little impact on the pre-established teacher beliefs about teaching and learning (Borg, 2009; Johnson, 2009; Verloop et al., 2001).

Freeman (1988) asserted that training programs for teachers that do not consider the backgrounds of teacher trainees and their prior beliefs about teaching and learning may not be successful. Language teacher training programs need to ensure that their teachers understand the pedagogical advantages of applying teaching and learning strategies that promote students ' functional communication skills.

A comprehensive research base has been developed over the last 20 years to analyze successful instructional strategies that educators can use to increase student achievement (Mastropieri & Scruggs, 2004). Experienced teachers learn through professional development programs, about these effective teaching strategies. Nonetheless, as reported by Hanegan et al. (2009), most teachers are not implementing their professional learning experiences in classroom growth. Since teachers (Corbett & Wilson, 2002; Murnane & Steel, 2007) and teacher expertise (Cothran & Kulinna, 2008) are the keys to effective teaching, it's important to ensure that every teacher uses research-based, validated teaching methods in classrooms. Elhensheri (2004) urged TESOL teacher education systems to be studied using a technique that varies from hers and defined an approach to the case study. A greater understanding of the assessment tool used by teachers in schools across Iran will lead to positive social change.

Most of the studies in Iran approve that applying twenty-first century skills in class is productive (Motallebzadeh et al., 2018; Motallebzadeh, & Kafi, 2015). Considering the related literature, it seems that although there are many studies regarding effective teaching

and twenty-first century skills, there is no study working on these factors in depth in Iran considering the teacher educators' perceptions of the present application of twenty-first century skills and effective teaching. One way to address the achievement gap is to improve the quality of teachers in Iran and across the country, particularly in areas where achievement is low. By asking those teachers who have been identified as successful what are the most important elements of teaching and learning, teaching assessment methods can be used more effectively not only to assess teacher quality but also to promote teacher development and hence improve student achievement There has been little work to investigate why teachers do not regularly employ tested, effective teaching techniques in the classroom (Douglas, 2009). Through recognizing barriers to effective teaching concepts, administrators may develop strategies to reduce or remove these barriers and increase the use of effective teaching approaches with the expected result of enhancing student achievement. This study therefore lays the ground for restructuring the Teaching English as a Foreign Language (TEFL) teacher education programs curriculum in Iran.

1. To what extent do the Iranian EFL teacher educators agree with twenty-first century skills?
2. To what extent do the Iranian EFL teacher educators believe that twenty-first century skills can be implemented?
3. What challenges exist in implementing the essential twenty-first Century Skills in the Iranian context based on teacher educators' perspectives?

3. Methodology

In this part, the overall method and procedures which were followed in this study are represented. In order to provide a vivid picture of what is going on, the information regarding participants, instruments, data collection procedures, design of the study, and data analysis are presented in the following sections.

3.1. Design and the Context of the Study

This study followed a mixed methods design in which both qualitative and quantitative data collection procedures were followed. The participants of the qualitative part were both male and female EFL teacher educators who were working in Universities of Iran. They taught in different universities such as State Universities (6 participants), Farhangian University (4

participants), non-profit & Non-governmental Universities (1 participant), Applied Science university branches and Islamic Azad university branches (4 participants) all over Iran in which TEFL was taught and their students were going to be English teachers in the future. The purpose of using this type of participants is to have adequate reliable and valid data to design a scale. The criteria for selection in the first phase of study were selecting teacher educators who have at least 10 years of experience and had taught teaching courses for many years which results in having deeper understanding of teacher education in Iranian context. Creswell (2009) says that purposeful sampling of respondents or sites will help the investigator know the issue best. The aim of purposive sampling is to select participants who are information-rich and render the most contribution to the study.

3.2. Participants

In the qualitative phase of the study which concerned drawing themes and patterns to prepare the first draft of the scale, 15 teacher educators –both male and female- with more than 10 years of teaching experience answered five researcher-made interview questions. The participants of the quantitative phase of the study included 351 male and female TEFL teacher educators in the universities of Iran who were selected based on purposive sampling. They taught TEFL at different universities and their branches such as Farhangian University, State University, Islamic Azad University, and Payame-Noor University all over Iran. They had at least 5 years of teaching experience. All the participants' native language was Persian and they were supposed to respond in English. All participants were assured of the confidentiality and privacy of their responses. Table 1 below shows the participants' information.

Table 1.

Demographic Information of the Participants

		Age Range				
		30-40	41-50	51-60	Above 60	Total
Gender	Male	22	80	74	5	181
	Female	16	83	62	9	170
Total		38	163	136	14	351

3.3. Instruments

In the present study, two instruments –one interview and one researcher-made scale were used. This section is dealing with the process of designing these instruments in more details.

3.3.1. Interview

To elicit teacher educators' perceptions of twenty-first century skills, the researcher studied the present literature deeply and based on the review literature, 14 interview questions regarding twenty-first century skills and the characteristics of a twenty-first teacher were formulated in the item pool phase. After revisions and modifications and consulting some experts, 5 items were used in the final interview. The questions were proposed after combing the related literature and they were confirmed by three faculty members at Torbat-e Heydarieh and Mashhad Islamic Azad Universities. The final interview questions were answered by 15 experts to draw themes and patterns.

3.3.2. Scale

The researcher took advantage of the KARDS model and the core principles of twenty-first century skills such as critical thinking, problem-solving, collaboration and communication to design the items. The draft of the scale was prepared based on the themes of the interviews at the previous stages, and refined by three faculty members in Torbat-e Heydarieh and Mashhad Islamic Azad University branches before administering the scale to the pilot groups of participants. Finally, it was piloted and its construct validity as well as its reliability index were checked. Consequently 26 items were remained for this part. The finalized scale had three sections- section one consisted of 9 items regarding agreement, section two consisted of 9 items regarding challenges, and section three consisted of 8 items regarding implementation.

3.4. Data Collection Procedures

To collect data, the first step, the participants of the qualitative phase were selected using purposive sampling. Then, the interview questions were sent to the 15 qualified teacher educators and their perceptions regarding twenty-first century skills were extracted using interview questions. The contents of the data extracted from interview questions were analyzed wisely and the recurrent themes and patterns were extracted through using MAXQDA software. Using the interview results, the researcher proposed some items to include in the twenty-first century skills scale. As getting into the pilot phase, 15 teacher educators responded to this scale. At this phase, the results of the pilot study revealed that

the scale had acceptable indices of validity and reliability. The former was checked through running Cronbach's alpha and the latter was measured through AMOS software.

Finally, the researcher prepared the Google DOC form of the scale and send the link to EFL teacher educators and 351 EFL teacher educators completed the link of scale for both EFA and CFA purpose. After data collection, the data were converted into SPSS to explore the possible components. The data for confirmatory factor analysis were gathered from 186 participants in the next phase. To analyze the data gathered for CFA, the AMOS software was employed.

3.5. Data Analysis Procedure

In order to answer the first, second and third research questions regarding the EFL teacher educators' perceptions of twenty-first century skills, after interview data collection, the recorded interviews were transcribed by the researcher for more in depth analysis. After transcription, the researcher read and reread the data to impose herself to saturated data. In this phase, the questions about twenty-first century skills and effective teaching were replied by the teacher educators and similar responses led to categorizing the emerging themes. Getting familiar with data, the researcher started to analyze it in a content wise manner to find the main themes and patterns indicated by the subjects. Following by extracting the highlighted themes and patterns, the data was coded and categorized under obvious headings. Lastly, the coded data was interpreted and represented as frequency counts to facilitate the process of comparison.

4. Results

This study aimed to develop and validate a scale for assessing Iranian EFL teacher educators' perceptions of twenty-first century skills. Initially, fifteen qualified and experienced teacher trainers were interviewed to elicit their perceptions of twenty-first century skills. Then, the transcribed responses extracted from the interviews were analyzed and the recurrent themes and patterns were identified. Drawing on these themes, the researcher developed a tentative version of a twenty-first century skills scale under the supervision of the faculty members who modified or removed the proposed items. It was necessary to make sure that the sample of the study enjoyed adequacy in terms of the number of participants. As a major step of the validation procedure, the scale was factor analyzed with a group of 351 participants. To

check if the number of participants for the final validation (N=351) was satisfactory enough, a KMO and Bartlett's Test were run.

Table 2.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.82
Bartlett's Test of Sphericity	Approx. Chi-Square	14943.06
	Df	351
	Sig.	.000

As table 2 shows, the number of participants proved to be satisfactory enough (KMO=.82). The KMO index studied the subtle correlation among the variance of the variables, revealing that the variance of the items of the questionnaire had *Not* been affected by the common variance of hidden variables. Moreover, the revealed Bartlett index rejected the hypothesis of correlation matrix convergence. These indicated that the number of 351 participants in this study was appropriate for the factors to be explored.

Table 3.

Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.42	43.94	43.94	11.42	43.94	43.94	7.03	27.04	27.04
2	5.109	19.65	63.59	5.10	19.65	63.59	6.72	25.86	52.90
3	3.4	13.24	76.83	3.44	13.24	76.83	6.12	23.55	76.45
4	1.40	5.41	82.25	1.40	5.41	82.25	1.35	5.19	81.65
5	1.07	4.12	86.37	1.07	4.12	86.37	1.22	4.72	86.37
6	.77	2.99	89.37						
7	.47	1.83	91.21						
8	.43	1.65	92.86						
9	.32	1.23	94.09						
10	.25	.99	95.08						
11	.22	.85	95.94						
12	.17	.66	96.60						
13	.14	.56	97.17						
14	.13	.51	97.68						
15	.10	.41	98.09						
16	.09	.34	98.44						
17	.07	.27	98.71						
18	.06	.23	98.95						

19	.05	.22	99.17
20	.05	.21	99.39
21	.04	.17	99.57
22	.03	.12	99.69
23	.02	.09	99.78
24	.02	.08	99.87
25	.02	.07	99.94
26	.01	.05	100.00

As Table 3 reveals, five factors were explored having indices more than 1 in the total column. This was high enough to let them remain and be considered as reliable factors in the next stages of data analysis. Moreover, the cumulative variance of the extraction loadings indicated that these factors could explain the variance of the variables to 86.37 percent.

Table 4.

Rotated Component Matrix

	Agreement	Challenges	Implementation
TF1	.89		
TF8	.88		
TF7	.88		
TF5	.87		
TF2	.87		
TF3	.87		
TF6	.85		
TF4	.81		
TF9	.79		
TF17		.91	
TF16		.88	
TF15		.85	
TF12		.84	
TF11		.82	
TF10		.82	
TF14		.81	
TF13		.80	
TF18		.75	
TF20			.89
TF22			.86
TF19			.85
TF25			.83
TF26			.81
TF21			.81
TF24			.77
TF23			.76

After rotating the component matrix based on the correlation index (table 4), 9 items with high a correlation index were found to belong to the first component. Nine components were categorized under the second component and 8 components comprised the third component. Since there were items on the fourth and fifth extracted components which had similar loading indices in these three components, only three components were considered in the analysis.

Table 5.

Component Transformation Matrix

Component	1	2	3
1	.56	.58	.57
2	.78	-.59	-.17
3	.23	.55	-.78

Considering the loading indices for the first component (agreement) which includes 9 items, it is revealed that the lowest index is .80 for the eighth item and the other items of this component had high loading indices. Regarding the second component (implementation) which includes 9 items, the lowest loading indices (.78 and .79) were for items 17 and 12 on the questionnaire and the other items had high loading indices. Finally, the third component (challenges) including 8 items had only one loading index lower than .80 (item 22) and other items had high and satisfactory loading indices.

To conclude, it could be asserted that the results of the Exploratory Factor Analysis indicated that the questionnaire was satisfactory and appropriate enough in terms of the underlying components to be considered by the researcher as a valid instrument for data collection (table 5). Moreover, the results indicated that the observed variables, i.e,. the questionnaire items, could be clustered under three major latent variables, i.e. questionnaire components. In naming the factors, the researcher consulted with some specialists in the field. As a result, 1) 9 items were clustered under the ***agreement***; 9 items were clustered under the ***implementation***; and 8 items were clustered under the ***challenges***.

Table 6.

Results of Reliability Analysis for twenty-first Century Skills Questionnaire

Component	Reliability Coefficient
Part 1 Agreement	.89

Part 2: Challenges	.85
Part 3: Implementation	.91
Total	.87

As table 6. shows the reliability coefficient between the elements of all factors in effective teaching questionnaire are above .81 and positive which is considered acceptable and satisfactory with the overall reliability of .87.

5. Discussion

This section mainly presents the results of data analyses gathered for the purpose of twenty-first century skills scale. The three research questions are answered. At the end, the discussion section pertains to comparing and contrasting the results of the present research with the previously done research in this realm.

Regarding the answer to the first question dealing with the agreement of teacher educators with twenty-first century skills, teacher educators found problem-solving, teamwork and communication, and adequate knowledge and digital literacy as the most important which is in line with (Darling-Hammond, 2010) who believed problem-solving is a critical skill that students need to learn in order to succeed in the modern world. She argues that traditional educational approaches, which focus on rote memorization and standardized testing, do not adequately prepare students for real-world challenges. Instead, Darling-Hammond advocates for a more hands-on, inquiry-based approach to learning, in which students are given opportunities to identify and solve complex problems. This type of learning can help students develop critical thinking skills, creativity, and collaboration, all of which are essential for success in the workforce. Overall, Darling-Hammond believes that problem-solving is a key component of effective education, and that educators should be focused on helping students develop this important skill.

Sahlberg (2011) discussed the role of teamwork in Finland's education system and its contribution to the country's success in educational outcomes. According to Sahlberg (2011), Finnish schools place a strong emphasis on collaboration and teamwork among teachers, which is seen as essential for creating a supportive and effective learning environment. Teachers are encouraged to work together to plan lessons, share ideas, and provide feedback to one another. This approach to teamwork is rooted in the belief that no single teacher can

be an expert in every subject or aspect of teaching, and that bringing together different perspectives and experiences can lead to better results for students. Sahlberg (2011) also noted that the Finnish education system places a high value on trust and respect among colleagues, which helps to foster a positive and collaborative work culture. This, in turn, contributes to job satisfaction and retention among teachers. Overall, Sahlberg (2011) argued that teamwork is an important factor in creating successful and equitable education systems, and that promoting collaboration and trust among educators can lead to better outcomes for all students.

Freeman (1988) argued that adequate knowledge of teachers is critical for effective language teaching. According to Freeman, teachers' knowledge should extend beyond just knowing the grammar and vocabulary of the target language. They should also have a deep understanding of the nature of language and how it is acquired, as well as an awareness of the cultural and social contexts in which it is used. Furthermore, Freeman (1998) emphasized the importance of teachers' pedagogical content knowledge (PCK), which refers to their ability to transform their subject matter knowledge into effective teaching strategies and practices. This includes knowledge of learners' needs, interests, and abilities, as well as knowledge of appropriate instructional materials and techniques.

Teacher educators found low creativity as the most important challenge in the Iranian context. Grose (2013) argued that the American education system has become too focused on standardized testing and rote memorization, which can stifle creativity and limit students' ability to think critically and solve problems creatively. She suggested that educators should place a greater emphasis on creativity and encourage students to explore their own interests and passions. The finding of this study is in line with research suggesting that a lack of creativity can have negative consequences for individuals and organizations alike, and that fostering creativity is an important goal in education and beyond.

According to Bellei and Morawietz (2016), a lack of creativity can result in stagnant problem-solving approaches, limited learning opportunities, and reduced innovation. They argued that organizations should actively seek out and encourage creativity from their employees in order to stay competitive and adaptable to changes in their environment.

Taking into consideration the third question regarding the implementation of twenty-first century skills, teacher educators believed that lack of teamwork is maybe the hardest to implement which is in line with Gándara and Santibañez (2016) who discussed the

challenges of applying teamwork in their study on teacher collaboration in schools. They noted that while teamwork is often seen as a way to improve teaching practices and student outcomes, it can also be difficult to implement effectively. The authors highlighted several factors that can contribute to these difficulties, including lack of time, resources, and support for collaboration, as well as differences in teachers' beliefs and attitudes towards collaboration. They also noted that effective teamwork requires a shared understanding of goals, roles, and responsibilities, as well as clear communication and trust among team members. Gándara and Santibañez emphasized the importance of addressing these challenges in order to promote effective teamwork and improve teaching and learning in schools.

6. Conclusion

This investigation focused on the development of a scale to measure Iranian TEFL teacher trainers' perceptions about twenty-first century skills. Since the components regarded by the researcher were extracted from the ideas the experts in this field were confessed, the same line of inquiry was paved by the researcher to develop, design and validate this scale. Hence, teacher trainers' levels of agreement, implementation and challenges were measured and the results of the gathered data were correlated with effective teaching questionnaire. Iranian Teacher educators believed that team-working, digital literacy, communication and problem-solving were the most important in twenty-first century skills. They also found creativity as the most challenging and team-working hard to implement. The findings of the study pave the way for programs such as TESOL with the aim of training teachers with high standards in which all these skills are taken into consideration and also for TEFL teacher trainers to design PDPs in which these skills are highlighted specially according to Iranian culture in which some of these skills such as team-working is degraded.

The findings of this study can have pedagogical implications for teacher training programs. Thanks to new insights regarding the barriers to implementing twenty-first century skills, administrators may develop strategies to reduce or remove these barriers, encouraging teachers and teacher educators to adopt twenty-first century skills in their teaching practice. This, in turn, can result in effective learning on the part of students. Indeed, a twenty-first language teacher should not be considered anymore as one who is just a

transfer of knowledge, she should be equipped with all the necessary skills, specially the main 4Cs of twenty-first century skills according to the growing command of today's society.

While the 4Cs were originally developed with a focus on education and preparing students for their future careers, they have also been found to be relevant and valuable beyond the classroom. The skills can be applied in many different settings and professions, from business and engineering to healthcare and the arts. However, it is important to note that the specific application and importance of each of the 4Cs may vary depending on the field or industry in question. For example, critical thinking and creativity may be especially important for those in design or innovation roles, while communication and collaboration may be particularly important for those in management or leadership positions.

Overall, the 4Cs of twenty-first century skills have demonstrated a strong degree of generalizability and relevance across a wide range of fields and industries. As such, they continue to be widely promoted and emphasized in educational settings and professional development programs around the world.

6.1. Limitations

There were conditions over which the researcher had no control. Limitations of the study include the following: Participants may or may not be prepared to respond sincerely. Other limiting factors related to this study can include teacher bias and teacher belief systems with respect to effective teaching and pedagogy. There may have also been a lack of consistency in the way teacher educators took the survey, or attempts to address questions in a way they thought the researcher would like to hear. Due to the demands of the teacher educators, they may elect not to participate. Participants may lack twenty-first Century Skills understanding.

6.2. Suggestions for Further Research

This research enjoyed some limitations and delimitations. The researcher employed a mixed-method design (qualitative and quantitative) to conduct the study. Researchers can take advantage of other designs to implement the scale to gather the data. The participants of this study were teacher educators and they were experienced to help the researcher find the patterns and themes for generating the items for the scale. The gender and their type of universities were not important to the purpose of this study, but the other researchers can use this categorical variable to compare the perspectives of male and female teacher trainers

towards twenty-first century skills scale. The major components the researcher came up with were agreement, implementation and challenges, other studies can be conducted to investigate the twenty-first century skills using other components such as those mentioned in the core principles.

6.3. Final Remarks

The newly developed scale can paint a better picture of how teacher trainers perceive twenty-first century skills. Using this scale will shed more light on the teacher educators' understanding of the twenty-first century skills as well as their implementation and challenges and identify the level of their agreement. Their responses can measure how well they are aware of the latest teaching models and frameworks and to what extent they are in congruence with the core principles. The results can also be beneficial in designing and developing PDs based on what has been found the most important of all twenty-first century skills and also on the most challenging skill of twenty-first century skills in which teachers seem to have weak-points which leads to a poorer performance on the side of the teachers and the learners who are the end-users of the language.

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