Original Article

ICT Comes to ESP Course: Iranian Students and Teachers' Perceptions of ICT Integration into ESP Instruction

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Abstract

The present study aimed to examine ESP teachers and students' perceptions of using Information and Communication Technology (ICT) in English for Specific Purposes (ESP) to identify advantages and potential challenges in using ICT in the Iranian ESP context. The sample under study was 100 undergraduate students and three TEFL teachers. An adapted questionnaire and a semi-structured interview were employed for data collection. The results showed that although most of the participants had positive perceptions of benefits of ICT integration in ESP instruction, lack of infra-structures, insufficient time, lack of syllabus consist of ICT-based materials, lack of teachers' competence, lack of positive attitudes, and social and cultural barriers prevented them from using ICT. The results of this study have practical implications for changing from the status quo ESP teaching in Iran to ICT-based ESP teaching and for enriching ESP courses through incorporating ICT-based materials in the ESP curriculum.

Keywords: Challenges, English for Specific Purposes (ESP), Information and Communication Technology (ICT), Integration, Iranian EFL Students, Perceptions

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1. Introduction

According to Dela Rosa (2016), the utilization of ICT in the arena of modern language education is not only a choice, but also the integration of ICT in language education is a necessity that creates different views on how language might be effectively taught and learned. A growing body of research continues to investigate the advantages and challenges that both teachers and students deal with utilizing technology-mediated approaches, such as incorporating ICT in language teaching and learning (Marsden, 2017; Rassouli & Chalak, 2014; Sydorenko, Hellermann, Thorne, & Howe, 2019; Yang & Kwok, 2017; Yu, Chang, & Wu, 2015).

A look into the previous literature makes it clear that there has been a bunch of rather scanty studies specifically relating to ICT integration in ESP instruction. For example, Dela Rosa (2016) investigated the benefits and challenges of integrating ICT but in secondary schools. Zalpour (2013) stated that integrating ICT tools into ESP programs is crucial for effective linguistic preparation for working in the modern technology environment as well as the future careers of the younger generation. This is while, only a little research has specifically investigated teachers at the college level while taking account of the integration of technology into their teaching and application of technological resources for instruction (Zalpour, 2013). He mentioned that over the past decade, the breakneck pace of integrating ICT into the educational context has changed the atmosphere of ESP teaching and learning classes; however, this approach seems to be neglected in the Iranian context. Indeed, ICT incorporation in ESP instruction has been extensively examined in previous years in different countries (Shaabi, 2010; Wisniewska, 2016; Yang & Kwok, 2017). However, there is relatively little existing research to investigate integrating ICT in ESP courses in the national context. Therefore, the present research benefits from a quantitative non-experimental descriptive study through questionnaire and interview to focus more on lesser-researched notions of advantages and challenges of integrating ICT into ESP instruction focusing on different views of teachers and students at the Iranian tertiary level.

2. Literature Review

2.1. Advantages of Using ICT in ESP

According to Zivkovic (2014), the current world of globalization and competitiveness has put more emphasis on making students (future specialists) ready to be

innovative, to think critically, and to effectively solve problems in the world. According to Butler-Pascoe and Wiburg (2003), some of the characteristics of ESP techno-enriched learning environment include making communicative activities representative of the specified profession; making comprehensible field-specific input to students; making easier student production; employing authentic materials from specific disciplines and occupations; providing cognitive abilities and critical thinking skills; employing collaborative learning; addressing specific needs of students (student-centered); supporting different learning styles; supporting motivation, self-esteem, and autonomy as the affective needs of students; supporting the appropriate assessment of content knowledge and English skills.

Fathi, Vajargah, Jahani, and Azadmanesh (2010) suggested that enriching the curriculum content at the tertiary level by employing digital libraries and information based on the Internet. They also said that university professors' experiences, students' interests, and needs are required to be embedded in deciding for curriculum design through a web-based need assessment.

According to Goodwin, Low, Ng, Yeung, and Cai (2015), previous studies on ICT integration suggest that how teachers perceive the significant role of ICT for teaching and their sense of ability in employing ICT determine their attitudes towards ICT use. It was also found that students and teachers' risk-taking beliefs were a factor that leads to the association between two issues including cognitive playfulness and perceived ICT significance. For example, according to Miranda and Russell (2012), the experience of teachers in utilizing ICT, their beliefs about the benefits of ICT, and their perceived importance role of ICT in teaching strongly determined their ICT use in the class.

2.2. Obstacles of Using ICT in ESP

Technology has not been used by many teachers in the classes because of lack of time, knowledge, and interest (Kleiner, Thomas, & Lewis, 2007). Some studies reported the major obstacles in implementing CALL in the Iranian EAP context involving lack of equipment, insufficient teacher training programs, and lack of teachers' knowledge in computer use. Moreover, other studies showed that the technophobia of practitioners (Wood, Muller, Laurier, Willoughby, Specht, & Deyoung, 2005) was another barrier (Atai & Dashtestani, 2013; Maftoon & Shahini, 2012). Thus, one helpful suggestion could be

"prior experience and success with this innovation are necessary for teachers to develop a sense of self-efficacy and a feeling of mastery before they are comfortable integrating this technology within their teaching" (Wood et al, 2005, p. 202). Rambe and Bere (2013) pointed out that technologies that are based on the web distract attention from pertinent educational activities to social networking, chatting, and lurking. In light of the above-mentioned explanations, this study examined perceptions into the integration of technology in the field of ESP. This paper aimed to describe Iranian teachers and students' perceptions of the advantages and challenges of ICT integration in ESP instruction. Thus, more specifically, the following questions were answered by this study:

1. What are the students' perceptions of the advantages and challenges of integrating ICT into ESP instruction?

2. What are the teachers' perceptions of the advantages and challenges of integrating ICT into ESP instruction?

3. Methodology

The design of the study, participants, instruments, and data collection and analysis procedures are explained in this section.

3. 1. Design of the Study

This quantitative non-experimental descriptive study is primary research in nature, in which a validated survey questionnaire and a semi-structured interview protocol were used.

3. 2. Participants

The participants of the study were a total number of 100 undergraduate students (see Appendix) in different majors, 40 males and 60 females, in the academic year 2019-2020, in different Universities in Isfahan in Iran, who had enrolled for the ESP course or who had passed this course, participated in this study. Most of the participants had mediocre familiarity with employing ICTs in their major. Additionally, researchers conducted semi-structured interviews with three teachers who were selected by convenience. The demographic characteristics of the teacher participants in interviews are indicated in Table 1.

Table 1.

Demographic Characteristics of the Teacher Participants in Interviews

Teacher Pseudonym	Age	Gender	Years of experience in ESP-course
T1	34	female	5
T2	33	male	7
T3	36	female	9

3.3. Instruments

Two instruments used in this study were an adapted questionnaire and semi-structured interviews which are explained in the next section.

3. 3.1. Students' Questionnaire

The first instrument was a five-point Likert scale questionnaire including 40 items. It was an adapted questionnaire that was designed by employing two existing questionnaires in the area of ICT integration in language teaching and learning (Soleimani, Khanjani, 2013 & Dela Rosa, 2016). They also consisted of validated items adapted from a review of previous empirical studies concerning the integrating ICT and technology in ESP instruction (Fathi Vajargah, Jahani, & Azadmanesh, 2010) by superseding "computer" with "ICT" in this questionnaire. The mentioned questionnaires were redesigned to suit the ICT integration in ESP-course of Iranian tertiary level, specifically with taking into account the students' perceptions of questionnaire' items. Therefore, some of the items of the two questionnaires were omitted or redesigned. To check the reliability and validity of the questionnaire, before initiating the study, the questionnaire was validated by a panel of three experts for face, content, and construct validities.

The first part of the questionnaire collected the following students' demographic information: gender, major, and their skills in employing ICTs in their major. The second part (Cronbach's alpha= 0.76.) of the questionnaire consisted of 40 items. These items were related to the main 6 themes in this study which were included: (a) the students' perceptions of using ICT in ESP containing fifteen items, (b) enriching the materials of ESP-course containing nine items, (c) students' skills in using ICT containing three items,

(d) obstacles to using ICT in ESP containing five items (e) teacher education consisted of three items (f) the social and cultural rules that impact on the development of ICT integration in ESP which consisted of five items.

3. 3.2. Interview

Since one of the limitations of the questionnaire is "the relatively short and superficial engagement of the respondents" (Dörnyei, 2003, p.47), the semi-structured interview was also used. The interview protocol consisted of 10 open-ended questions, related to six themes of the study, to examine the students' and teachers' perceptions of the advantages and challenges of ICT use in ESP instruction based on six themes in this study. The questions were validated by two experts in the field of TEFL who had several publications. Before answering each part of the interview, the aims of the questions presented in that section were explained to participants.

The question in the first part, Obstacles in Using ICT, was related to the obstacles that teachers are confronted with ICT integration in ESP teaching and learning. Two questions in the second part of the interview protocol, Perceptions of Teachers in Using ICT in ESP, were related to the teachers' perceptions of benefits of ESP teaching and learning by ICT integration. These questions also were related to their perceptions of changing or evolving teaching methods by using ICT in ESP. Two questions in the third part, Teacher Education, found the teachers' beliefs about the benefits of ICT use in ESP instruction. One Question in the fourth section, Enriching ESP Course, addressed the enriching materials of the ESP textbooks by using ICT- based activities and materials. One question in the fifth section, Teacher skills in using ICT, was related to the ability of teachers in dealing with ICT tools. Three questions in the sixth part, Social and cultural rules, aimed to investigate teachers' perceptions of the challenges namely, students' abusing, teachers' fear of being replaced by ICT, and technophobia. Additionally, one closing question was added to elicit the information that was not found by previous interview questions.

3.4. Data Collection Procedure

In the first stage, two questionnaires in the area of technology in ESP learning were considered. The adapted questionnaire was translated through back-translation.

The purpose of this procedure was that back translation increases the reliable and valid measurement of the constructs. Additionally, the researcher gains interpretable results from more people by fully understandable questionnaire (Nunan & Bailey, 2009). Firstly, the questionnaire was translated from English into Persian by two experts in translation. One of them translated the questionnaire into Persian. Then, another translator, who did not know and did not speak to the first translator, translated the questionnaire into the English language. Next, the back translation and the original questionnaire were compared by the experts and the researchers. There was no mismatch item.

Secondly, it was piloted to five students and the unsuitable and confusing items were omitted or modified. Subsequently, consulting sessions were presented with a panel of two professors of TEFL and one subject professor who presented their comments on the items of the questionnaire. The professors evaluated the validity of the adapted questionnaire and checked items for being faulty and vague. It became evident that five items required modification, for example, some explanations were added in parenthesis related to items 13 and 38 to avoid misunderstanding. The length of the sentences in three items (2, 10, 12) was also shortened based on the experts' comments.

Thirdly, the final version of the questionnaire was distributed to students during their midterm exams or their class break. Although the researcher expected that all the returned questionnaires were filled, out of 120 questionnaires that were collected, 100 students filled the questionnaire. The final stage of the study comprised a semi-structured interview with three teachers. Before conducting the interview, the questions of the interview protocol were validated by two experts. In sum, this stage took three weeks. In the next stage, the interview questions were piloted. The participants were asked to answer 10 questions related to 6 themes in this study. The interview sessions were recorded and participants were interviewed separately. The transcriptions of interview sessions were coded. The data collection was conducted in the second academic semester of 2019-2020.

3. 5. Ethical Issues

To address the ethical concerns, before conducting the survey, the following stages were taken into account. Firstly, before the survey, the participants were told that

participating in the survey is optional and they can refuse it. Second, students were provided with explanations about the general purpose of the study, and they were told that their responses would be remained confidential. Additionally, at the beginning of the interviews, to protect individuals' privacy, the consent form was read and signed by the participants. They also made sure that they would receive their transcriptions and a report of the results of this study to review and check, once they completed. Moreover, to keep teachers' anonymous, the following pseudonyms were given to them: T1, T2, and T3. Finally, to report the findings of the interviews honestly, different validity strategies: member checking, thick description, and peer debriefing were followed for reporting the interview findings in a trustworthy manner.

3. 6. Data Analysis

This study was conducted by analyzing the data from both students' questionnaires and teachers' interviews. Means, frequencies, percentages, and standard deviations were obtained. Since no comparison was made between the perceptions of teachers and students, no inferential statistics was used. To test the assumption of normality, before conduction *t*-test analyses, a series of Shapiro-Wilk's test was conducted. The *p*-values lined up under the Sig. column are all larger than the .05 level of significance, indicating that the normality assumption was met for all the subcomponents of the questionnaire. In the second stage, three teachers were interviewed and interviews were transcribed based upon 6 themes in the study as explained in the questionnaire section.

4. Results

4.1. Students' Perceptions

The students' responses to the questionnaire were analyzed and presented in the following tables (each of which represents a subscale in the questionnaire).

The frequencies of the responses to the questionnaire are indicated in Table 2. A mean score above 3.00, the average value of the choice, presents the respondents' agreement with that statement while a mean score below 3.00 indicates their disagreement.

Table 2.

Frequencies for the Students' Perceptions

Statements	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	Mean
1. ICT integration in ESP can provide face-to-face intimate interactions between teachers and learners.	14	17	16	33	16	3.28
2. I can avoid problems like handwriting and organizing idea and text when I use ICT tools.	4	10	8	37	38	3.97
3. Integrating ICT in ESP provides me the best chance to learn ESP.	11	20	19	29	18	3.23
4. ICT tools can help keep track of student progress in ESP.	8	20	8	44	17	3.43
5. ICT integration in ESP facilitates collaborative work between students in the class.	4	18	8	39	25	3.67
6. ICT integration in ESP contributes to concentrating more on their learning.	12	18	17	30	20	3.28
7. ICT integration in ESP contributes to try harder on what I am learning.	7	18	15	42	16	3.42
8. I have more autonomy in my ESP learning with using ICT	8	10	11	34	34	3.78
9. ICT integration in ESP contributes to me to understand more easily what I am learning.	7	14	14	36	26	3.61
10. ICT integration in ESP contributes to me to remember more easily what I have learned.	3	17	17	35	25	3.63
11. ICT integration in ESP contributes to improve the ESP class atmosphere (less boring classroom, students' engagement).	6	8	9	36	38	3.94
12. ICT integration in ESP contributes to improve my motivation for learning ESP-course.	4	11	11	37	34	3.88
13. ICT integration in ESP contributes to improve higher-order thinking skills in ESP (critical thinking, analysis, problem-solving).	10	11	12	35	29	3.63
14. ICT use in ESP teaching and learning is essential to prepare me to live and work in the 21st century.	7	4	2	34	50	4.19
15. ICT integration in ESP enables me for more interesting and creative work.	4	18	8	43	24	3.67

The table indicates that all the mean scores in the first part of the questionnaire (i.e., students' perceptions) were above 3.00, which means that the respondents agreed with all the statements therein. The highest mean scores in this part of the questionnaire belonged to items # 14 ($M = 4.19$), 2 ($M = 3.97$), 11 ($M = 3.94$), and 12 ($M = 3.88$), which respectively stated that (a) ICT use in ESP teaching and learning is essential to prepare the students to live and work in the 21st century, (b) students can avoid problems like handwriting and organizing ideas and texts when they use ICT tools, (c) ICT integration in ESP classes contributes to improving the class atmosphere by making classes less boring and making students more engaged, and (d) ICT integration in ESP classes promotes students' motivation for learning the ESP course.

The overall mean score for the items in this part of the questionnaire equaled 3.64, which indicates that the respondents, on the whole, agreed with the Students' Perceptions part of the questionnaire, and were thus found to be eager to employ ICTs in their ESP classes. The results of the one-sample *t*-test revealed that the respondents' agreement with the statements in the Students' Perceptions section of the questionnaire reached statistical significance.

Table 3.

One-Sample t-Test Results for Students' Perceptions

					95% Confidence Interval of the Difference	
Mean	*t*	*df*	*Sig.* (2-tailed)	Mean Difference		
					Lower	Upper
3.64	8.84	14	.00	.64	.48	.76

As Table 3 indicates, the *p*-value under the *Sig.* (2-tailed) column appeared to be less than the pre-set significance level (.00 < .05), which means that the respondents' agreement with the statements in the Students' Perceptions section of the questionnaire reached statistical significance. Table 4 provides information concerning the Enriching ESP Course section of the questionnaire:

Table 4.

Frequencies for the Enriching the ESP Course

Statements	Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree	Mean
16. Using ICT-based activities in ESP-course can satisfy my needs, preference, and learning tactics in ESP.	5	23	18	32	19	3.38
17. I think using ICT in ESP can provide authentically and up to date materials for learning ESP.	3	7	2	38	47	4.22
18. I know that incorporating the ICT-based activities in ESP-course can expand my knowledge and information in my major faster than traditional methods.	8	9	10	40	30	3.77
19. Using ICT tools are more effective for learning in ESP than printed materials.	7	10	13	43	24	3.69
20. In my view ICT integration in ESP can be used for ESP curriculum in tertiary education.	5	14	17	36	25	3.63
21. ICT integration in ESP-course is a more powerful tool than discussions and lectures without using ICT.	4	15	16	41	21	3.61
22. ICT integration in ESP can be used to effectively manipulate instructional contents and materials.	14	15	15	34	19	3.29
23. Integrating ICT-based activities in the ESP curriculum can be used as advanced instructional materials in ESP-course for tertiary education.	6	22	10	43	16	3.42
24. Integrating ICT-based activities in ESP-course contributes to self-access and contributes to the learning environment in ESP-course.	8	6	11	36	36	3.88
25. In my view, ICT tools are more powerful tools for learning ESP-course than traditional tools such as using only textbooks for ESP learning.	13	13	11	32	27	3.48

Table 4 revealed that all the mean scores in the second part of the questionnaire (i.e., enriching the ESP Course) were larger than 3.00, indicating that the students agreed with all the statements in this section. The three items with the highest mean scores in this section of the questionnaire were items # 17 (M = 4.22), 24 (M = 3.88), and 18 (M = 3.77), which respectively stated that (a) using ICT in ESP classes can help provide authentic and up-to-date materials for such courses, (b) integrating ICT-based activities in ESP courses contributes to self-access and to learning environments for the ESP course, and (c) incorporating ICT-based activities in ESP classes can expand students' knowledge and information in their major faster than traditional methods of teaching.

For this section of the questionnaire, the overall mean score was 3.63, which was well above 3.00, indicating that the students, by and large, agreed with the Enriching the ESP Course section of the questionnaire, and were hence of the opinion that using ICT-based activities can indeed enrich the ESP course. The results of the one-sample t-test show whether the students' agreement with the statements in this section of the questionnaire was of statistical significance or not:

Table 5.

One-Sample t-Test Results for Enriching the ESP Course

			Test Value = 3			
Mean	t	df	*Sig.* (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
3.63	7.33	9	.00	.63	.44	.83

As it could be seen in Table 5, the p-value turned out to be .000, which is less than .05, indicating that the respondents' agreement with the statements in the Enriching the ESP Course section of the questionnaire reached statistical significance. Tables 6 and 7 provide information regarding the third section of the questionnaire:

Table 6.

Frequencies for the Skills in Using ICT

Statements	Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree	Mean
26. All ICT tools increase my knowledge and skills as a university student.	14	18	7	33	25	3.38
27. I can learn almost everything about how to use an ICT tool.	9	36	15	25	12	2.94
28. I have enough and satisfactory information about ICT tools and educational software programs in my major.	13	45	9	21	9	2.67

In Table 6, item # 26, which stated that all ICTs increased their skills as university students, received the students' agreement ($M = 3.38$), but the next two items had mean scores lower than 3.00. Item # 27, stating that the students could learn almost everything about how to employ an ICT tool, had a mean score of 2.94, and the mean score for item # 28 was also less than 3.00 ($M = 2.67$), which showed that the students did not agree with the claim that they had enough and satisfactory information about ICT tools in their major. As it is obvious in Table 6, the overall mean score of this section of the questionnaire equaled 2.99, which was smaller than 3.00. This shows that the students tended to disagree with the Skills in Using ICT section of the questionnaire, and believed that they did not have all the required skills and information to employ ICT alone for ESP learning purposes. The results of the one-sample *t*-test in Table 7 shows that this extent of the disagreement with the statements in the third section of the questionnaire was not statistically significant:

Table 7.

One-Sample t-Test Results for Skills in Using ICT

				Test Value = 3		
Mean	*t*	*df*	*Sig.* (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
2.99	-.01	2	.98	.01	-.98	.88

Since the *p*-value was found to be larger than the significance level (.98 > .05), it could be inferred that the students' disagreement with the statements in the Skills in Using ICT section of the questionnaire failed to reach statistical significance. Information regarding Obstacles to Using ICT in ESP could be found in Tables 8 and 9 below:

Table 8.

Frequencies for Obstacles to Using ICT in ESP

Statements	Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree	Mean
29. For ICT to be fully exploited for teaching and learning in ESP-course, radical changes in university equipment are needed.	12	24	1	35	25	3.38
30. I have limited experience in using ICT tools and software programs.	29	36	4	20	8	2.40
31. ICT cannot be used in ESP-course because of organizing insufficient time for ESP-course by the university.	7	14	10	38	28	3.68
32. There is not sufficient equipment for the integration ICT in ESP instruction.	10	19	8	40	20	3.42
33. Because of the lack of a syllabus consist of ICT-supported lessons and ICT-based activities so that ICT cannot be used in ESP.	9	20	19	31	17	3.28

Among the obstacles mentioned in Table 8, students believed that insufficiency of university equipment (item # 29 and 32, *M* = 3.38 and *M* = 3.42 respectively), insufficient time for ESP courses (item # 31, *M* = 3.68), and lack of a syllabus consisting of ICT in ESP (item # 33, *M* = 3.28) were obstacles to applying ICT in their ESP courses. The

students, however, believed that they did not have limited experiences with ICT and did not see it as an obstacle to implement ICT in their classes (item # 30, $M = 2.40$).

Table 9 reveals that the overall mean score of this section of the questionnaire was 3.23, which was slightly greater than 3.00, indicating that the students, tended to agree with the statements in the Obstacles to Using ICT in ESP section of the questionnaire although their degree of agreement, as the results of one-sample t-test show in Table 9, was not of statistical significance:

Table 9.

One-Sample t-Test Results for Obstacles to Using ICT in ESP

			Test Value = 3			
	t	df	*Sig.* (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
Mean					Lower	Upper
3.23	1.06	4	.34	.23	-.37	.83

Since the p-value exceeded the significance level (.34 > .05), it could be concluded that the students' agreement with the statements in the Obstacles to Using ICT in the ESP section of the questionnaire did not reach statistical significance. Tables 10 and 11 provide details on the next section of the questionnaire:

Table 10.

Frequencies for Teacher Education

Statements	Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree	Mean
34. High-level risk-taking teachers hold more positive attitudes towards applying ICT for their teaching.	8	20	22	32	15	3.26
35. ICT tools have not been used for teaching ESP because of the lack of competence of teachers.	14	21	14	28	20	3.19
36. ICT tools have not been used for teaching because teachers have not attitudes and beliefs about ICT benefits for ESP teaching in the classroom.	8	10	13	44	22	3.63

The students agreed with all three statements in this section. They agreed that high-level, risk-taking teachers were more willing to utilize ICT tools in their classes (item # 34, M = 3.26), that ICT tools had not been used in ESP classes due to lack of teacher competence (item # 35, M = 3.19), and that ICT tools had not been utilized partly because of the attitudes that teachers held towards them (item # 36, M = 3.63). Table 11 indicates that the overall mean score of this section of the questionnaire was 3.36 and that this degree of agreement with the statements in this part of the questionnaire was not of statistical significance:

Table 11.

One-Sample t-Test Results for Teacher Education

| Mean | t | df | *Sig.* (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference | |
					Lower	Upper
					Test Value = 3	
3.36	2.63	2	.11	.36	-.22	.94

As the *p*-value was found to be greater than the significance level (.11 > .05), it could be construed that the students' agreement with the statements in the Teacher Education section of the questionnaire failed to reach statistical significance. The results of the last section of the questionnaire are depicted in Tables 12 and 13 below:

Table 12.

Frequencies for Social and Cultural Factors

Statements	Strongly Disagree	Disagree	No opinion	Agree	Strongly Agree	Mean
37. There is the cultural concern of using ICT tools such as using the Internet, text chat, mobile, etc. by students in the classroom.	21	11	4	38	23	3.31
38. Integration of ICT tools in ESP classes (Internet, audio, and text chat) by the students causes abuse by the students.	19	12	9	30	27	3.35
39. Fear of being replaced by ICT impact some teachers' decision to integrate ICT in their teaching.	14	8	21	37	17	3.36
40. Using ICT tools and software programs in ESP teaching can cause anxiety (technophobia) for some of the teachers because of illiteracy on the ICT tools.	17	12	14	35	19	3.27

Table 12 depicts the fact that the students agreed with all the statements in the last section of the questionnaire: they agreed that there are cultural concerns for using ICT tools in the classroom (item # 37, $M = 3.31$), that ICT tools might be misused in ESP classes (item # 38, $M = 3.35$), that teachers do not long for using ICT since they fear being replaced by such tools (item # 39, $M = 3.36$), and that ICT tools bring about anxiety in some teachers because of lack of teachers' ICT literacy (item # 40, $M = 3.27$). As it could be seen in Table 13, the overall mean score for this section of the questionnaire was 3.32:

Table 13.

One-Sample t-Test Results for Social and Cultural Factors

			Test Value = 3			
	t	*df*	*Sig.* (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
Mean					Lower	Upper
3.32	15.68	3	.001	.32	.25	.38

The *p*-value in Table 13 shows that the students' agreement with the statements in the Social and Cultural Factors section of the questionnaire reached statistical significance (.001 < .05).

4. 2. Teachers' Perceptions

The following parts present data on the teachers' perceptions of ICT incorporation in ESP. They are categorized as teachers' perceptions of currently ESP-courses and textbooks, enriching ESP courses, skills in using ICT, obstacles to using ICT in ESP, teacher education, and social culture.

4. 2. 1. Teachers' Perceptions of Currently ESP-courses and Textbooks

When the interviewees were asked about: (a) teachers' perceptions of advantages of ICT integration in ESP teaching and learning, (b) teachers' perceptions of changing or evolving teaching methods by using ICT in ESP teaching, and (c) teachers' perceptions of currently ESP-courses and textbooks and needs of the students in ESP, one interviewee (T1) said:

Recently, a movement has taken place in ELT in the areas of materials evaluation and development and it has had some positive consequences, but so much remains to be done. There is a gap between theory and practice. Although all the theories, now, put a

special emphasis on the enhancement of critical thinking skills, negotiation and motivation, and autonomy in the students, this emphasis has not been reflected completely in the textbooks and teaching methods.

In their accounts of changing or evolving teaching methods by using ICT in ESP teaching, two conflicting discourses emerged. T2 stated that *"I think some elaborate teacher training courses will be needed if any ICT-based program is going to be implemented successfully"*. T3 said that *"radical changes are necessary"*, and T2 pointed out that *"radical changes are not necessary, the main approach is CLT"*.

4. 2. 2. Enriching ESP Course

In terms of the issues involving (a) obstacles of employing ICT in promoting curriculum in the tertiary level, (b) facilitating factors and integral supports required for integration of ICT in curriculum development of tertiary level, and (c) advantages and disadvantages of integrating ICT-based activities and materials for tertiary level, the analyses of the teachers' responses are reported as follows: T1 said *"lack of the required equipment and financial resources"*. T2 also referred to the *"Lack of expertise as well as experience on the part of coursebook writers in preparing appropriate materials"*. T1 also mentioned some advantages and disadvantages of using ICT-based materials for tertiary level involving *"firstly, increasing the amount of student-student and student-teacher interactions in classrooms and outside; secondly, increasing the students' motivation, making the students responsible for their learning, and allowing the teachers to have more planning time"*.

T2 also referred to the merits and demerits of using ICT-based activities and materials for the tertiary level. Merits involve *"Authenticity of ESP teaching, raising intrinsic motivation for students to involve more in the learning process, and productivity of teaching and learning process.* On the other hand, demerits involve *"expertise needed for teachers on ICT specific knowledge, high expenses for installations and necessary facilities, and difficulty of assessment"*. About facilitating factors, T2 referred to *"In-service courses for both materials writers and teachers on ICT"*.

4. 2. 3. Skills in Using ICT

Regarding the teachers' perceptions of using and dealing with technical troubles of employing ICT tools, T1 said *"I have had some general skills in using computer*

technologies for teaching but I think I should take some special courses to become ready for managing a fully computerized lesson". T2 said that he had little skills. T3 said that she had enough skill.

4. 2. 4. Obstacles to Using ICT in ESP

In terms of the obstacles that teachers are confronted with ICT- based environments in general and ICT incorporation in ESP instruction in particular, the ideas have been presented as follows. For example, T1 referred to the lack of enough technical supports to contribute to the teacher in case of any problem, frequent computer hardware break-down, lack of familiarity with computer use on the part of students and teachers, and lack of well-designed online and offline resources for the specialized fields. T2 referred to the difficulty of summative assessment in ICT-based courses with such a large number of students as the obstacle. T3 expressed that *"ICT cannot be integrated into ESP because of insufficient time, the pressure to prepare students for final ESP-course, and insufficient knowledge".*

4. 2. 5. Teacher Education

The participants on the whole agreed that factors like teachers' perceptions of ICT, their ICT competence, their beliefs about ICT advantages, their valuing of ICT in the teaching and learning process are important in integrating ICT for their teaching. For example, T1 explained that *"Teachers' perceptions, competence,* beliefs, and *values are very important in defining and designing every aspect of a language course, especially when the course is intermingled with technological complexities".* She also stated that "*technology use in the classroom involves a lot of risks and it is the teacher who should accept these risks".* Additionally, T2 stated that *"In general, any kind of innovation and break from the past is more welcomed by risk-taking teachers".*

4. 2. 6. Social and Cultural Factors

When the ESP teachers were asked about the factors involving abuse of using ICT in the class, fear of being replaced by ICT, and technophobia, T1 said that *"in any type of technology use, many unpredictable and out of control aspects exist that may affect the quality of teaching".* Another interviewee (T3), when asked about fear of being replaced

by ICT stated: "*to teach English through technology, challenge teachers that can adapt themselves and always improve their learning are replaced teachers who do not*". Talking about technophobia, T2 explained:

One session training for teaching virtual ESP courses in IUT and subsequently teaching these virtual courses from home via special university-made on-line chat rooms. Familiarity with the Virtual world can enhance teaching efficacy and mitigate technophobia in such courses.

The results in this part indicate that teachers and students have positive perceptions of utilizing ICT tools in ESP instruction. The next part, therefore, moves on to discuss these ideas.

5. Discussion

To address the research questions presented in this paper, the following discussions were based upon the themes in the questionnaires and interviews. Considering the results of the surveys, the current study found that ICT integration in ESP provides the advantages such as making interactions between students, providing easier collaboration between students, developing autonomy, motivation, and higher-order thinking skills in ESP learning, learning ESP more easily, and providing authentic materials from their major. Consistent with the perceptions of the students, teachers have the same positive perceptions of the advantages of ICT integration in ESP. These results agreed with the findings of Butler-Pascoe and Wiburg (2003) who explained some of the characteristics of ESP techno-enriched learning environment involving providing interaction and communicative activities representative of the specified profession, making comprehensible field-specific input to students, making easier student production, employing authentic materials from specific disciplines and occupations, providing cognitive abilities and critical thinking skills, employing collaborative learning, addressing specific needs of students (student-centered), supporting different learning styles, supporting motivation, self-esteem and autonomy, and supporting the appropriate assessment of content knowledge and English skills.

Regarding the enriching ESP course, the results indicated that the students had positive perceptions of enriching the ESP curriculum by ICT-based activities and materials. All of the teachers believed that facilitating factors and integral supports were

required for the integration of ICT in curriculum development at the tertiary level. These results corroborated the findings of Fathi Vajargah et al. (2010) who suggested that the following issues: firstly, enriching of curriculum content by utilizing digital libraries and the internet; secondly, students' interests and needs are embedded in deciding for curriculum design through web-based needs assessment curriculum.

Regarding obstacles to using ICT in ESP, the students' perceptions were in agreement with teachers' perceptions. The teachers referred to the following obstacles: lack of enough technical supports to contribute the teacher in case of frequent computer hardware break-down, lack of familiarity with employing ICT tools on the part of students and teachers, lack of well-designed online and offline resources for the specialized fields, lack of enough time, and pressure to prepare students for final ESP-course. Some studies have also highlighted mentioned obstacles include lack of equipment, insufficient teacher training programs, and lack of teachers' knowledge in computer use (Atai & Dashtestani, 2013; Dashtestani, 2012; Maftoon & Shahini, 2012). Teachers' viewpoints also are consistent with Kleiner et al. (2007) who expressed that innovative technology has not been used by many teachers in the classes because of issues including lack of enough time, lack of knowledge, and lack of interest.

Considering teacher education, a common view amongst interviewees and students was that high risk-taking teachers had more positive attitudes towards utilizing ICT for their teaching. A possible explanation for this might be that usually, risk-taking teachers are more eager to utilize innovation and change. A further study on this issue is therefore recommended. The teachers expressed that ICTs had not been employed for teaching because some of the teachers had not beliefs about ICT benefits for ESP instruction. These ideas have also been emphasized by studies of Miranda and Russell (2012) who found that experience of teachers with ICT application, teachers' beliefs about ICT advantages, and perceived significance of ICT for teaching strongly established their ICT application.

Regarding the social culture, more than half of the students concurred that integration of ICT in ESP course causes the improper use of ICT in the classroom. This view was echoed by teachers' perceptions. There are similarities between the perceptions expressed by teachers and students in this study and those expressed by Rambe and Bere (2013) who maintained that technologies based on the web distract attention from pertinent educational activities towards social networking, chatting, and lurking. Some studies showed that the

technophobia of practitioners (Wood, et al., 2005) was also another barrier (Atai & Dashtestani, 2013; Maftoon & Shahini, 2012; Wood et al, 2005).

6. Conclusion

Considering the questions posed at the beginning of the present study, it is now possible to express the advantages and challenges of ICT integration in ESP through the lenses of the Iranian students and teachers at the tertiary level. The results showed that generally Iranian students and teachers at the tertiary level had positive perceptions of utilizing ICT in ESP courses. However, there were some obstacles including (a) lack of enough technical supports to contribute to teachers (b) inefficiency of teacher training programs, (c) insufficient time and interest, (d) lack of familiarity with employing ICT use on the part of students and teachers, (e) lack of required infrastructures and equipment difficulty, (f) lack of well-designed online recourses, (g) difficulty of summative assessment in ESP courses with a large number of students (h) technophobia, (i) abusing like chatting, and social networking that lead to the distraction of attention. These factors hinder the integration of ICT in ESP instruction at the tertiary level in the Iranian context.

This study has also investigated the advantages of ICT integration in ESP, advantages of ICT techno-enriched ESP course through ICT-based materials involving increasing interactions on professional issues between students and teachers in class and outside, making easier collaboration between students, developing autonomy, enhancing intrinsic motivation, allowing the teachers to have more planning time, presenting authentic materials from their major, and increasing higher-order thinking skills (critical thinking, analysis, problem-solving), raising engagement in learning, and increasing productivity of teaching and learning.

The major limitation of this study is limited access to more participants so that accessing a larger population would give more depth to the present study. Indeed, the most important limitation lies in the fact that due to the limitations in obtaining a wide population, the results of this paper are not generalizable. Moreover, this study is one part of a bigger project. Therefore, only teachers' responses to interviews and students' responses to questionnaires were provided. Since teachers and students hope about the future of ICT in ESP teaching and learning, it can thus be suggested that further studies focusing on mixed-method especially in the Iranian context are greatly needed. Results of

this study could have implications for presenting teacher training programs, enriching Iranian ESP courses at the tertiary level by integrating ICT-based materials and activities in the ESP curriculum. It is expected that the results of this study will give new insights into teaching and learning ESP instructions with the utilization of ICT.

The results of this paper could pave the way for ESP researchers to explore the barriers of ICT incorporation in ESP instruction at the Iranian tertiary level. Finding these barriers is the first stage towards overcoming them. Indeed, according to Rassouli and Chalak (2014), exploring ICT integration at divergent settings can be the initial step in exploring the sources of the challenges that hinder this integration. The results of the study could also be helpful for ESP material developers. Indeed, integrating ICT in ESP instruction has revolutionized and changes the ways of developing ESP materials by ESP material developers. The consequences of ICT integration in ESP instruction have significant implications for language teaching. Indeed, the results could help change from the traditional ESP teaching and methods, which have an inordinate focus on reading comprehension, memorizing vocabulary, and translation, to ICT-based ESP teaching and learning which prepare students for communicative use of ESP.

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Appendix

Shapiro-Wilk's Test of Normality

Table 14.

Results for Shapiro-Wilk's Test of Normality

Questionnaire Subsections	Shapiro-Wilk		
	Statistic	*df*	Sig.
Students' Perceptions	.959	15	.682
Enriching the ESP Course	.943	10	.582
Skills in Using ICT	.981	3	.738
Obstacles to Using ICT in ESP	.821	5	.120
Teacher Education	.866	3	.284
Social and Cultural Factors	.925	4	.564