Investigating the Challenges of Integrating Information and Communication Technology in Teaching English Language

Omer Awad Salama Idris[*]

Academic Department, Saudi Petroleum Services Polytechnic, Dammam, Saudi Arabia
*Corresponding author: omeridris9@gmail.com

Abstract Over the past few decades, information and communications technology (ICT) has become gradually more important to schools and universities. The Saudi Petroleum Services Polytechnic still faces some challenges regarding ICT integration in teaching. The purpose of this study is to explore and identify the challenges and barriers that encounter integrating ICT in classrooms in SPSP. The researcher seeks answer to the research questions; what are the challenges that face English language instructors in SPSP when integrating ICT in teaching listening skill? What are the instructors' perspectives towards ICT integration and do the English language instructors face unique barriers that hinder them from integrating ICT in their classrooms? The researcher hypothesizes some challenges like teachers' poor preparation, lack of confidence, lack of time, old hardware and software, insufficient fund and technicians' poor response to faults play essential role in challenging integrating ICT in teaching English language. The research adopted a mixed-methods approach to data gathering, using questionnaires and semi-structured interviews. The study is conducted in Saudi Petroleum Services Polytechnic and targeted 45 English language instructors. The results show that technical problems like old software and restricted access to update or download software, continuous system breakdowns and the poor response to fix them by technicians are the major challenges. The recommendations include more training for instructors, curriculum development, maintain and update both of software and hardware on regular base, regular quality checking, provide peer support and self-study materials and opportunities and assign staff to curriculum and material related to ICT design.

Keywords: integration, challenges, information and communication technology, teaching English language

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1. Introduction

1.1. Statement of the Problem

Saudi Petroleum Services Polytechnic (SPSP) has started integrating information technology in teaching and learning in both academic and technical departments in order to graduate skilled and trained workforce that meets the requirements of petrol industry. SPSP wants to provide tech-supported learning environment and transform the teaching and learning processes so that the trainees can deal with knowledge in an interactive way. Despite the efforts exerted by the administration of the institute and the financial support, the experience is still facing various challenges. Though these challenges have various aspects, they all together limit the use of information technology in. The researcher has observed that the information and communication technologies integrated in SPSP have clear short comings. It is observed that the hardware and

software used in the classrooms are old and need updating. That results in sudden breakdowns, technical faults, virus attacks, slow speed devices and even the overhead projectors lamps die out suddenly. These short comings affect negatively the course of the teaching process as whole. The negative effects play major in delays in pacing schedules and the material delivered to the students. The purpose of this study is to explore and identify the challenges and barriers that encounter integrating ICT in classrooms in SPSP and whether such barriers and challenges will affect the instructors' decisions to use or not to use ICTs in their classrooms. Integrating information technology in classrooms will help the instructors to perform their jobs effectively and encourages the students to learn positively. Moreover, the study aims at providing possible solutions to the encountering barriers, so the teaching and learning processes will run seemly. The study focuses on the intrinsic and extrinsic factors as well the steps to be taken to overcome them. It is a comprehensive transitional process from the traditional teaching techniques to information technology usage.

1.2. Objectives of the Study

Integrating ICT in education has become one of the most important topics of research during the last two decades. Findings provided evidence of positive effects of using information technology in education. On the other side, there are some challenges inhibit using information technology in education.

Accordingly, the researcher has set three objectives to be achieved when conducting this study. The objectives are:

1. To find out the challenges face the teachers when they integrate information technology in teaching listening skills.

2. To examine the impact of the barriers and challenges on teaching and learning processes and on teachers' performance.

3. To suggest practical solutions to the challenges of integrating information technology in classrooms.

1.3. Research Questions

Understanding the pedagogical and cognitive barriers to successful use of information technology may be a vital precondition for improving the utilization of computers and other technological aids in the educational process, as mentioned in [1]. Instructors face some challenges when they integrate ITCs in their teaching and these challenges, in some cases are inevitable to the process as whole. To address the research's objective, the study seeks to answer the following questions:

1. What are the challenges that face English language instructors in SPSP when integrating ICT in teaching listening skill?

2. What are the instructors' perspectives towards ICT integration?

3. Do the English language instructors face unique barriers that hinder them from integrating ICT in their classrooms?

1.4. Hypotheses

The researcher hypothesizes different kinds of challenges face the instructors when they adopt or integrate ICT in their classrooms that affect the learning process and have drawbacks on learning and teaching. Accordingly, the researcher hypothesizes some barriers hinder integration of ICT in teaching listening skill.

- Teachers' poor preparation, lack of confidence, lack of time, old hardware and software, insufficient fund and technicians' poor response to faults play essential role in challenging integrating ICT in teaching listening skill.
- The instructors have positive attitude towards integrating ICT in teaching English language.
- There are no unique barriers face English language instructors when they integrate ICT in their teaching. The challenges that encounter the instructors of English language, mathematics and the technical subjects are alike.

1.5. Definition of ICT

The rush of information technology that invaded our lives, paved the way for technology to dominate most, if not all, parts of our daily life. Young people, students, older people and even kids deal with technology in a way. That created a phenomenon that can be named technology invasion. Then, this technology should invade education while the students and the teachers have been turned into technology addicts. And really it did. When the term technology mentioned, computers, advanced machinery, laptops, smart phones, Internet etc. jump to our minds and vast portrait has been drawn there but with no absolute definition to ICT. When ICT is mentioned, computers and computing activities jump to the mind. This is not the case. Other technological applications, like smart phones, iPad, iPod, laptops and software, are included in ICTs. ICT is a field of work and study that "includes technologies such as desktop and laptop computers, software, peripherals and connections to the Internet that are intended to fulfill information processing and communications functions.

As it is defined in reference [2], ICT has been much more explained as follows:

Information: is basically data, which with the addition of learning becomes knowledge. In other words, learning which is based on the capacity to find, access, apply and transform information into new knowledge. Important competencies which learners require to make this transformation are often called information literacy competencies and include awareness of the need for information, the ability to critically analyse information and evaluate its usefulness and ultimately to be able to apply the information, turning it into knowledge.

Communication: is that simple act of dialogue between peoples and cultures that takes on a new dimension when combined with 'information' and 'technology'.

Technology: is not strictly limited to the Internet and includes simpler technology such as CD ROM, video, television etc. although the term 'information technology' does imply the use of the Internet and telecommunication networks. Certainly, in educational practices, information technology falls into two parts:

a. Computer technology which is computer-based courses, computerized tests, word processors, graphics software, spreadsheets, databases and presentation software;

b. Telecommunications software which offers distance courses, distributed educational resources, e-mail, videoconferencing, bulletin boards, whiteboards and chat'

ICTs stand for information and communication technologies and are defined, for the purposes, as a "diverse set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information." These technologies include computers, the Internet, broad casting technologies (radio and television), and telephony.

Reference [3] indicates to the challenging meaning of ICT in terms of a universal sense when considering the diverse of the term ICT exists within several contexts. The span of definitions within each type of application across the globe can vary widely; however, the primary definition of information and communication technologies revolves around the devices and infrastructures that facilitate the transfer of information through digital means.

1.6. ICT Definition in Education

In terms of education, the definition of ICT may vary from the general concept of ICT. The meaning of ICT is confined to the use of hardware and software in teaching and learning. Thus, the definition is restricted to certain concepts. ICTs are a potentially powerful tool for extending educational opportunities, both formal and non-formal, to previously underserved constituencies—scattered and rural populations, groups traditionally excluded from education due to cultural or social reasons such as ethnic minorities, girls and women, persons with disabilities, and the elderly, as well as all others who for reasons of cost or because of time constraints are unable to enroll on campus, as stated in [4]. Reference [3] sheds more light on the acronym ICT (or ICTs) is used differently in education including benchmarks of digital literacy, economic sector definitions and regulations, information technology disciplines, socioeconomic development, and governance.

In terms of educational technology, a broad definition of technology has to be considered. The technology of the Internet involves more than just a collection of tools, but a system that combines computers, telecommunications, software and rules and procedures or protocols, as per [1]. More illustration is introduced by [1] "I tend to think of technology in education as things or tools used to support teaching and learning. Thus computers, software programs such as a learning management system, or a transmission or communication network, are all technologies. A printed book is a technology. Technology often includes a combination of tools with particular technical links that enables them to work as technology system, such as the telephone network or the Internet."

In education, particularly, there are two different uses of the term ICT. First, ICT could be used as a subject when students learn about ICT, that is, computers literacy, computer science and information literacy. Secondly, ICT refers to the use of various computer applications as a medium to enhance the teaching and learning process, which is, learning with ICT. But ICTs are more than just these technologies; older technologies such as the telephone, radio and television, although now given less attention, have a longer and richer history as instructional tools. Reference [4] tackles more various kinds of ICT products available and having relevance to education, such as teleconferencing, email, audio conferencing, television lessons, radio broadcasts, interactive radio counseling, interactive voice response system, audiocassettes and CD ROMs etc. have been used in education for different purposes.

ICT in education is defined as all information and communication digital devices that can be used in the teaching and learning process, encompassing: hardware such as computers, interactive whiteboards, digital cameras, projectors, scanners etc., software such as word processor programs and communication networks such as the Internet and email, as stipulated in [5].

2. Methodology

It is a mixed method research with philosophical assumptions as well as methods of inquiry. It has been argued by [5] that mixed methodology involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative approaches. He assumes that using quantitative and qualitative as combined approaches provides a better understanding of research problems than either approach alone. To balance the strengths and weaknesses of this study, a mixed research methodology is employed. As pointed out by reference [5], there are many advantages to using a mixed method approach. The mixed approach provides the best opportunities for answering the important research questions. The quantitative section, which includes questionnaire, addresses the research questions related to the challenges to integrate ICT in teaching listening skill. The qualitative section includes the interviews. Researchers adopted different research methods to secure the data collected to answer their question. The mostly employed data collection methods are questionnaire and interviews, each of these provide an alternative tool for the collection of empirical data and allow the researcher to ascertain a clearer picture of the information, an accurate measurement of the data and evidence that supports the subject matter, as pointed by [6].

By blending several qualitative and quantitative methods, an overall strength of research can be achieved. Each method compensates for the weaknesses of the other one they work side by side, as asserted by [7].

2.1. Questionnaire

The researcher has adopted two instruments to answer the research questions. The two instruments are a questionnaire and an interview.

Collecting data by using a questionnaire is popular technique, especially in case studies. According to [8], "Such technique is adopted by individuals, research workers, private and public organizations and even by governments. Persons concerned answer the questionnaire in this method". Reference [8] sheds more light on questionnaire when he defines it as a number of questions printed or typed in a definite order on a form or set of forms. The subjects of the case study are expected to read and understand the questions and write down the reply in the space meant for the purpose in the questionnaire itself. The respondents have to answer the questions on their own. The questionnaire is the heart of the study. Hence, it should be very carefully constructed. If it is not well constructed, then the whole survey is bound to fail. The questionnaire is the preliminary stage of data collection usually contains predetermined set of questions that participants are asked to answer, as pointed out by [9]. Questionnaires are widely used in business and education fields. Reference [8] illustrates that they are often structured, and all respondents have the same sequence of questions. The body of the questionnaire comprises open-ended questions or closed ended questions.

2.2. Interview

The interview method of collecting data involves presentation of oral-verbal stimuli and reply in terms of oral-verbal responses, as mentioned in [8]. This method can be used through personal interviews and, if possible,

through telephone interviews. Reference [8] carries on exploring the interview method via defining the personal interviews, as method requires a person known as the interviewer asking questions generally in face-to-face contact to the other person or persons. The method of collecting information through personal interviews is usually carried out in a structured way (structured interviews). In such interviews a set of predetermined questions and of highly standardized techniques of recording. The interviewer of structured interview follows a rigid procedure laid down, asking questions in a form and order prescribed. In the interviews, the researcher can get more information because the respondents speak freely and express their own ideas, and this helps them to speak without restrictions. The interview uncovers more in-depth information about the research topic. Thoughts, values and opinions of knowledge and experience of teachers in the research area are explored and the missing points from the first data collection tool are elaborated. The interviews aim to answer all the research questions. Conducting interviews, gives the research the opportunity for further probe any responses that might require clarification. Hence, interviews with respondents in concern would allow greater probing of the answers provided. The technique used in the interview aimed at obtaining in-depth information about the influential factors on ICT integration in teaching listening skill and gave the chance to the respondent to suggest solutions to overcome the influential factors.

2.2.1. Rationale of the Interview

The rationale of using interviews alongside with questionnaire is to investigate the challenges and barriers intensively. Interviewing instructors who are closely affected by the challenges and barriers to ICT implementation is a useful technique to gain better understanding of the research problem through their experience. Policy makers have the authority to put rules and make laws that correspond to ICT implementation in teaching. Nevertheless, teachers are the ones who implement ICT in teaching and are the ones witness the challenges and – sometimes – offer temporary solutions to maintain the flow of their lessons. Thus, they can suggest solutions to issues they faced and experienced if they are given the opportunity to converse freely in relaxed and comfortable conversations.

3. Results

The researcher has hypothesized several challenges face instructors when integrating ICT in their teaching. The hypotheses are:

- The teachers' poor preparation, lack of confidence, lack of time, old hardware and software, insufficient fund and technicians' poor response to faults play essential role in challenging integrating ICT in teaching English language.
- The instructors have positive attitude towards integrating ICT in teaching English language.
- There are no unique barriers face English language instructors when they integrate ICT in their teaching. They face the same challenges that

encounter the instructors of mathematics and the technical subjects.

The discussion of the research led to the following findings:

1. Teachers are broadly confident about their use of ICT in their teaching; however, four-fifths of them received training.

2. Not all the teachers have positive perspectives towards using ICT in teaching. There are still some teachers need to change their perspectives towards ICT integration.

3. Younger teachers are more confident when they use ICT in their teaching. However, older teachers do not feel comfortable when they use information and communication technology. This point indicates that age plays major role in ICT integration.

4. Technical problems such as old software and the restricted access to update or download software, play major role in reducing and hindering complete ICT integration.

5. It is clearly pointed out to one critical challenge, which is the technicians' response to faults or system breakdowns, is not on timely manner. Such delay affects the teaching pacing schedules.

6. Teachers' loads such as marking assignments, preparing materials and more than five teaching hours every day affect ICT integration negatively.

7. The infrastructure at SPSP does not match with ICT integration. Old computers, smart boards, overhead projectors and electronic pens are out dated. They need to be replaced. These out dated computers are formatted every segment with new updated software which does not fit the properties of the old computer and that leads to slow the computer.

8. There are some extrinsic challenges such as financial fund and administrative procedures that reduce the use of ICT in teaching.

4. Discussion

4.1. Questionnaire Discussion

In the following part, the researcher is going to discuss and describe the quantitative results obtained from the questionnaire.

It has been noted that 62% of participants believe that digital tools and resources are used exclusively for teaching and professional communication. The researcher believes that the teachers agree with the above-mentioned statement because every classroom is equipped with desktop computer, a projector, smart board and installed software. All this equipment is devoted for teaching and utilized in teaching and communication with the administration. 63% of the participants acquired the basic skills of using digital devices or computer literacy though they have not received the required training, which is given, by the polytechnic. Receiving training is a major requirement of integrating ICT in teaching. It is not a barrier to integrate ICT in teaching, however it supports the assumption of not receiving the required training increases the possibility of incomplete integration. It has been found that 30 teachers (85%) believe that technology

is a reliable teaching source for teachers of digital era. Believing in reliability of technology as a teaching resource enhances integration of ICT in education and does not stand as a drawback in teaching. In contrast, such belief makes teaching easier and more fun. As it can be seen from the data analysis, 96% of the responses agree that the technology available in SPSP is easy to use which facilitates the process of teaching. The researcher believes that, the availability of such technology in any educational institution will facilitate teaching and learning processes and will eliminate any barrier that hinders ICT integration. Instructors need to be evaluated on ICT integration bases. However, neglecting such evaluation criterion is considered a challenge to integrate ICT in teaching. The table shows that 25 out of 35 (71%) instructors agree on teachers' evaluation is not based on ICT integration. 4 (11%) instructors are neutral and 6 (18%) disagree. Teachers should be evaluated according to the degree of information and communication technology integrated in teaching listening skill and barriers should be observed. About 30 out of 35 (86%) of responses agree on having self-confidence when integrating ICT in their teaching. Such confidence creates healthy teaching environment. In contrast, lack of such confidence is a big challenge of ICT integration in teaching. However, only 2% of respondents are not confident when they use ICT. Thus, lack of self-confidence is one of the challenges of integrating ICT in teaching. The results show that most instructors (25 instructors); that is about 71%; believe that the software needs regular updates which they cannot access to due to administrative restrictions. Whereas 17% of the responses do not agree on this point despite the importance of the regular software updates. Although that more than half of responses agreed on receiving technical support when needed particularly during placement tests, continuous assessment procedures or during the classes, 29% of responses are neutral. The researcher believes that technical support should be 100% agree. Such responses indicate that technical support is not fully achieved and that constructs solid challenge in ICT integration in teaching listening skill. When asked about the infrastructure in SPSP, just over half of the responses 57% agree that the infrastructure is modern. On the other hand, considerable proportion, which is 29%, represents neutral and 14% disagree. This indicates that the infrastructure in SPSP is not as required. The positive and negative responses are so close. From the data provided by the responses, it is obvious that 60% of the responses agree on the time lost when start up computer and projectors particularly in the first lesson. Taking too long time to start up computers may result in time wasting and thus affects the pacing schedules. Having strong internet connection facilitates utilizing online materials and gives access to numerous websites for teaching English language. From the table above, slightly more than half of responses; 55% agree that the internet connection available in SPSP is fast connection and enables ICT integration. However, 31% of responses say that the internet connection is not strong enough to run all applications related to ICT and results in some technical problems. This indicates that not having fast Internet connection is one of the challenges face ICT integration. About 60% of responses agree that the technicians' response to technical problems face the

instructors, is not on timely manner. Technicians take longer time to respond and fix the technical problem. Such delay results in time waste and reduce ICT integration. Instructors, in such cases use the white board and the board markers. However, 23% disagree on that. Technicians' response to all technical problems face the teachers is not as it should be. There may be some reasons behind this delay, but to have a complete ICT integration; technicians are the spine of this integration. The results show that 61% of responses agree that new versions of software must be installed in a timely manner. Some teaching materials need regular updates and subscription renewal. It is noticed that instructors do not have admin access to update the software. They have to wait for the technicians to update the software. This is critical issue and takes long administrative procedures until the updates take place.

4.2. Interview Discussion

The interview aims to strengthen the validity of the findings from the questionnaire. In the interviews the teachers can speak freely in their own way and this helps them to speak without any restrictions which offer high credibility to the researcher at the time of teacher's interview. In the interview, the researcher can go deeper to get more details and expands the discussion with the interviewees. Interviewing is one of the intense methods for helping individuals to make unequivocal things that have heretofore been verifiable to articulating their observations, sentiments, and understandings.

Question 1: Introduce yourself (position, teaching experience, highest academic degree, age and nationality)

The first question tackled the interviewees' educational and teaching backgrounds, their experience and the academic degrees they got. All the respondents were expert in the field of teaching and have quite wide experience in using ICT. All participants hold degrees in ESL and TESOL. Seven of the participants hold master's degrees in ESL and TESOL as well. Their experience ranges between 5 to 25 years of teaching English as a second/foreign language.

Question 2: Tell me about ICT tools you currently use in your teaching

All responses to this question indicate that the interviewees use many information and communication technology tool in their teaching.

"I use a PC and overhead projector as well as a computer alb. A few months ago, I also used iPad on the Aramco Programs"

(Interview transcript 1)

"We use iPad and a series of software iBook developed by Saudi Aramco as curricular alongside MDM software and Apple TV, WIFI. Additionally, a variety of Apps and websites we used as supplementary classroom teaching aids. An LMS is under development"

(Interview transcript 8)

Question 3: *Tell me about your technological background in terms of using ICT tools, your experience in using them and why you use them in teaching?*

In this question, it has been observed that the respondents are familiar with technology when they started teaching and have acquired a certain amount of experience over the years. One of the respondents raised major issue in ICT integration. He explained that:

"*Most of my teaching experience has been in developing countries where access to ICT tools is limited due to cost and lack of electricity. Most of my experience using them was in my MED program and here in KSA I use them because they can help explain a point visually and they help maintain the students' attention*"
(Interview transcript 5).

The responses to this question give indication to the importance of ICT integration. Accordingly, 80% of responses linked between using ICT tools, enhancing lesson delivery, engaging students and monitoring students' progress. The responses to this question refute the assumption of [10]; that teachers were afraid to use ICT in the classroom as they feel having limited knowledge in the area of ICT.

Question 4: *How important do you think it is to use ICT in your teaching*?

This question is designed to answer the research question number two: What are the instructors' attitudes towards ICT integration?

Overwhelmingly, the response to this question is positive about the importance of information and communication technology in teaching. The responses showed utter agreement among the interviewees about the importance of ICT and to which extent ICT enhances teaching. For example, one respondent describes the importance of ICT as *".... important to diversity one's teaching tools in order to make learning more interesting. Learning should be an enjoyable process*" (Interview transcript 1). Whilst another respondent raised another supporting answer "*You can teach with books and blackboard, but ICT provides many tools to enhance the learning process*" (Interview transcript 8). Another response linked technology to generations "*Very important and engages a younger tech. savvy generation*" (Interview transcript 8). Nevertheless, one respondent tweeted outside the swarm "*In Saudi Arabia, it is critical, in the United States more of benefit*" (Interview transcript 4).

Question 5: *What are the advantages and disadvantages of using ICT in teaching?*

In this question, the researcher aims to find a link between the disadvantages of ICT in teaching and the barriers that affect ICT implementation. Though the question consists of two parts, the part that tackles the disadvantages is more important than the other one. Disregarding what is mentioned in the previous sentence, each part will be treated equally.

The responses give various advantages and disadvantages to information and communication technology integration in teaching. One of the respondents went further and deeper and rose up important point in learning English as a second language. The respondent views the advantage from the point of authentic English "*… enhances learning, allows students listen to authentic English, it is fun and enjoyable*" (Interview transcript 1). All the respondents agree on that ICT integration in teaching engages the students in the learning process since young people are familiar with similar technology. This point is enhanced by the respondent "*Multi-media and visual aids gain attention of the students ...*" (Interview transcript 5). Another respondent highlights interactive lesson "*More engagement for the students and interactive lessons ...*" (Interview transcript 7). The same respondent talks about students' concentration "*…. improves overall classroom*

participation and concentration" (Interview transcript 7). One the other hand, the disadvantages mentioned by the participants are various. One of the participants indicated to the cost of information and communication technology. He argues that "*ICT tools are extremely expensive and some of ICT tools take a long time to set-up and can be very troublesome overtime and some teachers find difficulty to use ICT tools*" (Interview transcript 7). Here again the issue of financial support arises which supports the assumption of funding as one of the challenges face ICT integration. Another participant shed light on students' needs and levels "*Might not always meets the students' needs/levels appropriately*" (Interview transcript 9). One participant tackles the relation between the curriculum and ICT. He states that "*Curriculums have still not fully adapted to digital literacy*" (Interview transcript 2). Curriculum development has to be related to digital literacy. In other words, it is waste of resources when introducing curriculum designed to align with technology and digitally illiterate teachers are assigned to deliver that curriculum. One the challenges pointed out in the results of the questionnaire, is software and hardware update. One of the interviewees supported the same point "*Computer systems sometimes break down, it can become an end in itself and not all teachers are proficient in ICT*" (Interview transcript 1). This supports the hypothesis of the research paper. One last point is the lack of teachers' access and troubleshooting. Interview transcript 4 summarized this critical challenge in this quote "*... number of disadvantages is troubleshooting problems and firewalls that restrict use.*"

Question 6: *what kind of previous ICT training did you receive and how it was delivered? Did you enjoy it? Did it add a new knowledge to you?*

Many respondents to this cited that they have received ICT training in SPSP when SPSP integrated ICT in teaching; however, some of the participants have received or completed ICT training in their previous workplace. One of the participants cited: "*The most recent training I received was here in SPSP. However, I also completed ICT training in my previous workplace which Adult Education in Ireland, Saudi Aramco and BAe Systems.*" (Interview transcript 3). Some participants knew the basic functions such as projecting the iPad screen with Apple TV "*The only formal training I received was at SPSP for the iPad training. I learned how to do some basics functions, such as projecting the iPad screen with Apple TV. It was enjoyable.*" (Interview transcript 1). Other participants received training of ICT during their studies or through boards of education in countries other than Saudi Arabia. A good example of that is the interview transcript 4… "*I received training through the Board of Education in New York State and MA program. The training was not helpful. I found the software intuitive and simple to use*".

Question 7: *What are the barriers do you think that hinder integrating ICT in teaching.*

This question is designed to answer research question number; what are the challenges that face English language instructors in SPSP when integrating ICT in teaching listening skill?

In this phase of the interview, the interviewer asks more direct and probing questions regarding the factors affect

ICT integration. The researcher aims at finding new or other barriers than those mentioned in the questionnaire since the questionnaire is restricted to certain hypotheses assumed by the researcher.

One of the participants considers ICT itself is a barrier once it is insisted as an end itself, instead of as a tool to enhance learning. Furthermore, he explains that: *"...ICT systems require a lot of maintenance to function properly and must be regularly updated. At any current place of work, this does not happen. It also requires a lot of training."* (Interview transcript 1). This comment added ICT itself as a barrier if it is used as an end not as a tool that facilitates teaching and learning processes. Additionally, another comment pointed to an outdated curricula and discomfort of some teachers. Another common response dragged the attention to the financial position of the educational institution. Educational institutions have to allocate annual budget for ICT integration, update the installed programs and hire expert technicians. It is likely there are some other barriers face teachers when integrating ICT in their teaching as well. Such barriers are implicated in the educational institution's vision and acceptance a long with a structured approach with the requisite resources i.e. people and infra-structure. The participant goes further and illustrates that: *"Training is key and analyzing the benefits that occur"* (Interview transcript 10). Thus, the educational vision and teachers' training are key barriers. Another participant sheds a light on the teachers' beliefs about ICT integration. "It varies from person to person. *"The ability to grasp new means of ICT, software, hardware etc... and learn how effectively can be for one person a natural progression with very little training required"* (Interview transcript 10). Interestingly, more than five of the participants indicated to the instructors' willingness to try new technologies. Additionally, six participants talked about the cost of integrating ICT and infra-structure.

Question 8: Thinking about the barriers mentioned in question 7 above, how far do you think they affect your teaching?

This question is formed to explore the second objective of the study which is to examine the impact of the barriers and challenges on teaching and learning processes and on teachers' performance.

The participants have answered this question thoroughly and talked about various effects of the barriers. One participant assumes age as important factor in particular for old and young teachers:

".... having a large part of your colleagues unable to perform simple ICT techniques creates staff insecurity. A lot of the older teachers are marginalized because of the technology in the classroom, particularly administrative tasks, such as electronic attendance". (Interview transcript 4). Again, the age merges as a critical barrier to ICT integration. Disregarding the age, training to the old teachers may reduce the impact of this barrier.

Infrastructure is essential part of ICT integration that is linked to the cost incurred by the educational institution. A respondent indicates to ICT failures as an often hinder to his teaching: *"My teaching is often hindered due to failures in the ICT infrastructure and equipment at my workplace"* (Interview transcript 1). Other respondents raised the issue of refine and update the curricula. Another

barrier pointed to by one of the respondents, which is material preparation time, such as preparing suitable Apps, exercises and activities are time consuming. On the other hand, a respondent has a positive view about ICT integration in teaching. He reports that: *"I am very IT positive, so I went to learn and use technology in teaching where I find it enhances the learning. I would feel most comfortable teaching in technology enhanced learning classroom taking a blended learning approach"* (Interview transcript 8). Time as well is one the barriers that mentioned by one of the respondents. He explains that: *"Time is often a barrier. Familiarizing yourself with the technology can be time consuming .... Time restrictions are often prohibitive. May instructors developing their material is a waste of resources when it is needs to be done centrally once and done well"* (Interview transcript 10). Here, the respondent indicated to material preparation which should be prepared in advance because it consumes the instructors' time which should be utilized to familiarize with the new technology.

5. Conclusion

This study was carried out in the Saudi Petroleum Services Polytechnic where there is a growing of ICT use in teaching. There has been no previous study carried out to find out the challenges face ICT integration or to assess the outcomes of ICT integration. The overall goal of ICT integration is to develop an effective ICT-based teaching. To achieve this goal, thus study hypothesizes that examining of teachers' perspectives about ICT integration and the challenges they face could be useful in many ways. ICT implementation was a useful way to figure out the barriers and teachers could suggest some solutions to overcome these barriers findings from qualitative and quantitative data revealed many barriers. Intrinsic barriers were also diagnosed and extrinsic barriers as well. Not hiring ICT motivated teachers, old electronic devices, the absence of scheduled audit and maintenance and technicians' weak response to breakdowns could be responsible for most of the challenges that face ICT implementation in SPSP.

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