On the Development of a Software towards Ameliorating Iranian EFL Learners' Reading Proficiency

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Abstract
This article presents the outcomes of how Dynamic Assessment (DA) may be organized to function within a class's Zone of Proximal Development (ZPD). The testing field also has recently undergone noticeable changes leading to a shift to use technology that is emerged in our era. The study investigated college students' barriers and motivations for testing reading comprehension ability using the newly designed software. To this end, 30 participants were interviewed and the related data were analyzed thematically to identify emerging themes relating to the current status of the new testing environment. Four themes emerged relating to potential barriers and motivations and the results showed that working with the software provided positive experiences of working in a supportive environment. The study found that using the newly designed software in the classroom generally enhances learning and other outcomes. This novel software does not only aim to reduce barriers in conventional testing environment but also highlights the positive aspects which enhance motivation.

Keywords: Reading Comprehension, Software, ZPD, Dynamic Assessment, Technology

Introduction

Using technology in education increases interaction and collaboration among participants and the World Wide Web fosters new means of communicating and interacting both in real and asynchronous time and provides authentic material and resources that can be easily exploited. Information technology has restructured everything in our lives; especially our attitudes towards learning. Thus, e-learning has become a strategic element which can be adopted by higher educational institutions to improve educational outcomes and to enhance students' skills.

Applying computer technology for language learning affects many of the issues and topics because technology is the basis for communication responsible for increasing language contact and globalization, which influence language education in turn. Many novel opportunities for language learning are provided by technology and using these options to structure learning for students is a challenge for all language teachers. The advent of digitalization came with a three-fold promise from the very onset: increased reach, decreased cost, and enhanced learning outcomes. The first two were pretty obvious. By going online, learning content reach anyone with an Internet connection and would be accessible at a fraction of the cost of traditional education.

In addition to the benchmarks of online learning by many researchers who approved the advantages of this kind of learning, there is no clear framework that can be used for designing novel software. For Chapelle (2007, p.586), 'extensive language and cultural materials are available through the Internet; teachers can structure information hunting activities through the

use of search engines'. Although there have been attempts to definite steps and to utilize alternative models (Marshall & Mitchell, 2004), there are no serious signs of results in Iran's universities.

Computer Assisted Language Learning (CALL) provides a kind of input and interaction that can be selected to fit the learners' level and provide evaluation of learners' responses. Therefore, some controlled opportunities such as texts to read or videos to watch and listen to are provided for the learners via these activities and interaction with the computer. When the learner clicks to have a response, to move forward, or to request hints or more information about the place of response, interaction occurs. Practical concerns such as updating teacher education, understanding new ideas developed through technology, and developing more appropriate learning tasks were provoked by doing research on CALL.

Based on the Times Higher Education Teaching Survey 2017, more than half of academics and 68 percent of administrators agree that learners benefit from computerized content, but they show less enthusiasm and motivation for recording lectures and broadcasting them. Grove (2017) asserted that the use of social media for student-teacher interaction is still not widespread in academic contexts. Online learning and new developments like mobile learning, software usage for online evaluation (Daramoumis et al., 2013) and adaptive learning technologies are increasing. More research on software designing is required and this line of research has attracted the attention of researchers to a higher degree in recent years (Debattista, 2018).

This research attempts to investigate the important factors which formulate a framework for learning in Iranian universities and then design new software to facilitate Iranian learners' reading skill. This framework would be able to create a uniform vision for reading comprehension ability at Iranian universities. The aim of this paper is to provide a new testing and teaching environment to train English language teachers by making use of technology and deepening on those tools and resources which could provide help to them into their teaching practices in higher educational system using new software to enhance students' reading comprehension ability. As the software developers, appropriate tailored individual hints and helpful points are the goals of this study and providing learners with the kinds of support they need in order to develop reading ability is the assumption behind this research.

Some researchers (Graham et al., 2013, Debattista, 2018) view technology as the solution to educational problems and others (for example Garrison and Anderson, 2011, p.54) see it as a means to deviate attention from the real aims of education, but the fact for teachers and learners is that technology puts forward some new opportunities and challenges. The general effects of technology on language use outside the classroom influence learners' knowledge and expectations for technology use in the classroom. Whereas employing computer technology to help learners with their language study was seen as innovative and novel two decades ago, today teachers who fail to mediate technology in language teaching are likely to be judged at least out-of-date.

Technological learning system in Iran has been developed in past few decades but still it is not reached to the goal where students can easily learn their higher educational lessons. Due to lack of qualified teachers, quality ambience and quality content, the higher educational sector of Iran is suffering from many deficiencies. Learning by technologies has been widely adopted by higher educational institutions in the developing countries. Also, it offers several advantages for higher educational administrators, faculty members, and students. At the present time, most of the Iranian public universities have the basic resources required for the implementation of e-learning but limited research studies have been conducted to investigate the criteria affecting the

introduction of new software in the deployment of e-learning in Iran. Therefore, this study aims to provide new software as well as to explore the relationship between students' attitudes and their perceptions of the new environment, effects of learning by technology, strategies of new environment learning, and how this new learning could be implemented.

Educational Technology in which results in learning (Marshall, 2002) provides education with new potential facilitating learning and training (Sadler-Smith & Smith; 2004, Conceicao, 2006; Hew & Cheung, 2007). This study's effort concentrates in selecting the most appropriate theories, models and solutions which learning technology offers for the purpose of this research. How can learning be evaluated and attributed to technologies that are employed in language learning? Issues about how to use and how to evaluate technology for language learning are central to language teaching today when learners have different conceptions regarding technology and its use for learning.

In this regard, assessment refers to not only systematically collecting and analyzing information about a learner but also to interpreting and acting on information about learners' understanding and performance in relation to educational goals (Bennett, 2011). An ongoing strand of Dynamic Assessment (DA) is the Computerized Dynamic Assessment (CDA) which provides learners with automatic mediations through computers. Applying CDA has some advantages such as being administered simultaneously to a large number of learners, providing the opportunity for learners to reassess as many times they would like, generating the scoring file of each learner as they finish answering to the questions, etc. The present research has applied the use of CDA on reading comprehension of university students.

In recent years, the growing importance of DA in L2 (Ableeva, 2008; Aljaafreh & Lantolf, 1994; Poehner & Lantolf, 2005) in general, and L2 reading comprehension (Anton, 2009; Kozulin & Garb, 2002, 2004) in particular has been organized. Improving students' progress in certain abilities e.g. reading comprehension in this study and to make them aware of their potentiality for learning by focusing on the cognitive processes of learning are two principal purposes of DA.

Due to scarcity of research done in the area of process-oriented investigations of reading comprehension and qualitative methods of its application, this study attempts to address these concerns through applying CDA, which is an ongoing strand of DA and overcomes some of the DA issues to reading assessment and instruction. Finally, since there is no suitable software for adjusting it based on our learners' strengths and weaknesses, the study aims to design a new and unique one to help unsuccessful readers in English language learning.

This research goes on to study the components of software to provide a quantifiable tool. Therefore, the data will be collected and analyzed according to the following research question:
What are the attitudes of the participants towards computer assisted instruction in reading comprehension?

Literature Review

The last decades have seen tremendous growth in the use of technology in education so that "Learning Technology" has now justified itself as a full discipline in its own right (Grooms, 2003). Learning Technology is the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources (Richey, 2008).

Using technology in foreign language education is one of the research fields that is continuously growing. It is a crucial field that needs high attention and many researches to investigate different aspects of its usage. A large majority of these studies rely on one factor (i.e.

students' attitudes, academic attitudes, differences in beliefs toward e-learning, models for e-learning, university attitude or strategy of implementing e-learning), but there are only a few studies providing correlational data between more than one factor suggesting that it is important to balance these factors. In this article, the learning comprehensive software provides a means by which Iranian Universities can assess and compare their capability to sustainably develop, deploy and support technology especially in reading comprehension ability.

To better set the goals for this study, we will first clarify DA affects new strands of learning and education. The theoretical basis for DA is found in the works of the Russian psychologist L.S. Vygotsky and specially his writings on Zone of Proximal Development. 'It is a product of research conducted by the developmental psychologist, Vygotsky', Hessamy and Ghaderi wrote (2014, p. 646). Lev Semyonovich Vygotsky was born in 1896 in the small Russian town of Orsha and was raised in Gomel in Belorussia. According to Cotrus and Stanciu (2014), the terminology of DA 'has come to describe a particular style of testing, but more importantly has come to be associated with an alternative way of thinking about assessment. Most succinctly, dynamic assessment involves embedding interaction within the assessment and observing and recording the learner's response and ability to profit from this interaction (p. 2616).

DA has been researched as an alternative method of assessment to classic intelligence tests and is a reaction against conventional testing in which mediation is an essential part of the process. Tasks are given to learners but the focus is on how these tasks are tackled. There are various differences between DA and testing and with different purposes. 'Not to compare children among each other, not to rank them, not to predict, but to understand, explore, advise and design interventions' (p.2618) are several objectives of DA. The main difference between DA and Static Assessment (SA) is that learning process is important for DA, whereas results or products of learning are important for SA.

Lantolf and Poehner (2004) categorized two broad approaches to DA, namely, interventionist and interactionist. The interventionist type of DA takes intervention from the examiner into account during the test procedure and it is more formal and standardized approach. The learners are given instruction item by item and if they cannot answer the item correctly, they are given some hints to solve the problem. The use of standardized administration procedures and forms of assistance are the characteristics of interventionist DA.

Unlike interventionist approach to DA, interactionist approach follows Vygotsky's way of thinking and dynamics of development. Interpretation of learners' behavior is more important than their measurement and this can be accomplished through interventionist approach and the cooperation with the learners. Hints, on the other hand, are not mentioned in advance, but they emerge from mediated and collaborative interaction.

Dynamic Assessment and ZPD

We examine Vygotsky's work which is becoming authoritative and dominant in shaping dynamic theories of learning. In his seminal work, Poehner (2013, p. 5) asserted that 'Vygotsky's initial use of the ZPD was as an alternative to conventional IQ tests, which he argued obscured processes behind performance and failed to capture abilities that were not yet fully developed but still emerging'. Years later, he reasoned that emergent abilities are most controllable to any mediation and advocated ZPD as a basis for developmental pedagogies. ZPD is the difference between the learner's actual level of development and that level of performance that can be attained in collaboration with an adult. In short, *interaction between teachers and learners creates ZPD.*

According to Mahn and Steiner (2013), Vygotsky focused on the vital role of individuals in sociocultural contexts and their roles to internalize interactions with the society. They believed that in contrast to some dominant theorists such as Piaget and Freud 'who generally ignored the role of history and culture, and, consequently, based their analysis of thinking, learning, and teaching on universal models of human nature, Vygotsky's sociocultural framework supports pedagogical and research methods that honor human diversity and emphasize the influence that social and historical contexts have on teaching and learning (p. 118). That is, Vygotsky's new methodology indicated the weaknesses of behaviorism, cognitive approach and subjective psychology.

Vygotsky believed that unlike animals, humans work with the world in a mediated manner and employ special tools such as signs and language to understand the whole world and mental functioning is not exclusively determined by biological instinct and response to environmental stimuli. DA follows ZPD by suggesting learners a form of mediation in order to prepare them to perform beyond their present level of functioning (Vygotsky, 1986). He used this concept to describe the gap between children's present and everyday concepts and academic concepts. For Poehner (2013, p.4), in short, 'the ZPD has been called upon to describe virtually any form of instructional interaction and any kind of learning'.

The most comprehensive second language DA study is reported in Poehner (2008). DA includes presenting mediation to help learners achieve the goals beyond their level of independent performing while simultaneously supporting development of those abilities, and thus integrating teaching and assessment as a single activity is the key objective in modern life of education. DA is an approach to interaction in which a teacher helpfully engages with students and motivates them to extend their performance beyond levels they could reach independently (Haywood and Lidz, 2007; Poehner, 2008). For Poehner (2011, p.246), 'DA represents a fundamentally different way of thinking about assessment and teaching that is grounded in a dialectical understanding of the mind'. DA, moreover, views assessment and teaching as an integrated and cooperative activity in which mediation shows the range of learner abilities that could be done independently so that learner's responsiveness to mediation is crucial to understanding how these abilities are accomplished autonomously.

Dynamic Assessment and Formative Assessment

Since efforts are made to relate assessments to teaching and learning, DA is more often linked to formative assessment. Formative assessment includes a range of practices developed to inform teachers of learners' knowledge of what has been taught and possible need for more instruction in future. Formative assessment practices vary widely. The relationship between DA and formative assessment as a question has been raised. DA practitioners have mainly concerned with processes for assessments that take account of student involvement in mediation and responsiveness to interaction. DA has been quickly known as an influential framework for integrating teaching and assessment and offers novel insights into learners' L2 abilities and promotes their development. Conducting formative assessment and providing appropriate feedback, however, are time consuming but computers can be completely useful.

Dynamic Assessment and Computers

Computers in 1960s and 1970s were not very powerful. A few scholars, however, designed some computer based assessments and tools for learning and education. These computerized teaching and assessment are called computer-assisted instruction. Computerized

testing systems were developed in educational environments in early 1970s and they were used as supplementary tools at schools and instant feedback was provided too for learners.

New pedagogical and psychological approaches have been introduced in few decades. Changing from behaviorism or structuralism to cognitivism or nativism and then to constructivism advocated a shift from a teacher centered to learner centered approach and novel techniques such as problem based learning and collaborative learning were designed accordingly. As Shute and Rahimi (2017) stated; 'in the past couple of decades, advances in the learning sciences and technology have influenced new thinking and practices related to assessment for learning' (p.4). In this century, so that, there has been an explosion of new technologies and they have impressively changed the educational environments. Regarding testing and assessment, 'paper-and-pencil tests are slowly becoming a thing of the past as assessments are now increasingly being designed as adaptive' (p. 5) and the world of assessment, feedback, and knowledge is impressed by these novel innovations and controversial topics of assessment in the digital age are emerged.

This study will show significant data as a base for future study for Iran's Educational System in higher education level for designing and implementing an online program for training English language teachers. The important point in this research is the need to develop software to assist learners at higher education level and provide a new testing environment and experience. This software could be one of the first tools to provide quantifiable materials in assessing and learning reading comprehension ability.

Methodology

This research adopted a qualitative design with semi-structured interviews for data collection. The purpose of the present study was first to explore and generate dimensions about new software for CALL at universities in Iran and explore reading comprehension strengths and weaknesses using qualitative in-depth interviews. Then, based on these themes, the software was tested in the class. The main aim of using this approach was to discover the deep meaning of a new experience in the students' own words.

Participants

The qualitative data will be collected through in-depth interviews conducted with a purposeful sample of learners. The number of the participants are 30 learners at Islamic Azad University of Marivan which is the pioneer in conducting e-learning system for English language teacher training program throughout Kurdistan province. These interviews are used to create a uniform evaluating strategy of the new designed software.

The first instrument utilized was a proficiency test including some reading items which was administered to the participants in two different ways, namely traditional one and the computerized one. The purpose here was to measure their reading ability and find the best way to get better results. The software, in other words, was applied for measuring reading performance of university students.

Data Collection Procedure

Standardized and different types of items of reading comprehension were administered via computer. Rather than a single attempt at each item, learners were permitted many tries and after each incorrect response a mediating prompt of increasing explicitness was provided. An overall score for the test as well as a profile of performance on individual items of the test and the level of mediation required were generated and then saved by computer. These parts of research

promise to deepen our appreciation of CALL and DA's relevance to L2 development, and additional computer assisted learning will undoubtedly further refine our understanding of DA.

Data Analysis Procedure

In order to answer the research question, qualitative research method is adopted in the following way: A qualitative approach will help in exploring the concepts of the computerized DA and Computer Assisted Instruction (CAI). The purpose of this QUAL study is to explore and generate dimensions about new software in higher educational level which can be used to assess the comprehensive level of certain dimensions of reading comprehension in Iranian universities by designing the software and using face-to-face interviews with learners.

In this context, the researchers will first design the software and interview a few participants to obtain their specific attitudes and comments about CALL, and their reading ability. The feasibility of the software will be measured after testing it in one academic term. Text and questions were presented using a new computer-based technology that provided automatic adaptive feedback depending on the experimental condition at the end of the test.

Discussion in Traditional and Modern Mode

Qualitative analysis of data extracted from all included studies and analyses was performed. Based on the study objectives, categories of data were identified that addressed research question. The coding of data was conducted by reading the full texts of interviews. A thematic analysis was also conducted on the data, which revealed four main themes. Two related to motivations and developments participants had, these were topics with positive points, experiencing modern and traditional testing and supportive testing situation. Two themes also emerged as potential barriers participants faced and the challenges of working within novel testing environment using the designed software.

Negative Points for Conducting Traditional and Modern Testing Environment

Traditional Testing Environment

The most significant barrier in which participants had to overcome in order to pass the conventional test concerned issues with the lack of mediation and hints when they are uncertain and got stuck between two choices. Most of the participants acknowledged that they learn nothing when taking the conventional test because there is no hint or mediation in the middle of the test administration. Interviewee 5 stated *'I sometimes feel confused because I am in a dilemma between choosing two options and when I choose, I do not know which one was true and I learn nothing but in the software at the end of each question you will know which one is the true answer'* (Interview 1). Interviewee 1 also acknowledged that; *'I can remember some parts of text and hints and also questions and answers because when I answered a question wrong the software guided me by some hints so that I could find the correct answer easier'* (Interview 1). The issue of using hints when taking the test has been clearly highlighted in interviews and has demonstrated the importance of mediation in modern education and the motives for pursuing self-development. This is particularly an outstanding barrier which students can overcome if they take the modern test and use the designed software.

Some participants maintained that sometimes the text in traditional testing is too long and you must turn over the pages many times to find the answer, for example, *'The positive point of software is that you can see the text and the question together and you can focus better but in the conventional one when you see a question you have to turn the paper over to find the answer in the text which is so distracting'* (Interview 2, interviewee 5). Although some students mentioned

the problems of not having the items and answers in the same page, others still believe they have this chance to go back and reply the tough items. Participants expressed these ideas as they acknowledged the importance of concentration and regarded focusing on items as a determinative merit of the software. Participants recognized that their sufficient concentration impacts not only on the quality of their guesses but also has an influence on decreasing their anxiety and stress when taking the test.

The final important barrier in administrating traditional test that examines have to overcome is *'time management'*. The majority of the participants expressed their confusion on managing the time when they are taking the test. One participant expressed feeling very worried about the lack of time to provide the answers: *'to me the traditional testing was stressful because I did not know that how much time do I have but in the software system I had the time and I could manage it better and there was no teacher to make me anxious about the time limitation'* (Interview 1, interviewee 8). This core barrier has been mentioned by some students and they see it as a demotive to have the reliable scores.

Modern Testing Environment

The first challenge faced by participants is the lack of enough capabilities working with the software and computers. Some participants stated that working with computers could at times be challenging and stressful since they live in a developing country. Interviewee 7 mentioned: *'The negative point of the software is that; it is somehow confusing for those students who do not have experience'* (Interview 2).

Participants, however, demonstrated that having technology in modern life could help to overcome this barrier. Although not explicitly mentioned by the participants, working and testing with computers could be somehow boring. The following potential supportive and protective factors are therefore important in helping to overcome risks experienced in working with new technology and the designed software. For example, interviewee 11 mentioned that *'working with computer helps student to learn to manage their time properly and to be more detailed oriented'* (Interview 2).

Positive Points for Conducting Traditional and Modern Testing Environment

Traditional Testing Environment

A motivating theme in conventional tests that arose from the interviews was assigning and dedicating more time and energy to tough items more than easier ones. These students believed they were being perceived as passive participants in modern tests and everything was designed without their active roles. One of the students stated that *'I have the authority of dividing my time as I want. May be one question is more difficult for me so I devote more time for that one which I don't have this chance in the software because the division of time is equal for all questions'* (Interview 2, interviewee 3). This quote was further supported by another participant who confirmed the easy time management in conventional testing.

The findings from the present study confirmed that you can focus better in conventional testing system. Nonetheless, despite the evidence, some participants in this study still held the more traditional view that 'revisiting the harder items later' and reminding their answers in conventional testing would be more beneficial for them, *'I had the whole text and I could skip the harder questions and later come back to answer them. Sometimes at the moment you do not remember the answer of a question but later you may remind that question so you have this chance to go back and answer'* (Interview 2, interviewee 1). Some participants, however, spoke

more generally about their perceived role and influence as the learners and did not mention academic reasons specifically.

Conventional testing, moreover, is less stressful than the modern one since there is no need to have special skills to fulfill the requirements. Scrolling the page up and down, moreover, whenever you want is another positive factor mentioned by the participants, *'one of the problems in the software system is that it is not easy to scroll it up and down whenever you want'* (Interview 1, interviewee 7) but in conventional testing, it is really easy to go back and forward depending on the level of item difficulty for a specific test taker.

Modern Testing Environment

Throughout the interviews, the motivating theme of testing in modern environment became apparent. All participants expressed how they thought CALL was a good experience, which they both enjoyed and gained a sense of achievement from, *'it gives us some hints and gives us hope and self-confidence that we can find the correct response'* (Interview 2, interviewee 11). Similar ideas have been reflected throughout the interviews and found that the prospects of using the software for testing is considered as an excellent testing choice and these are highly motivating factors for CALL. Despite the new stressful environment as mentioned by students, helpful hints were strong motivator or protective factor that can moderate any barrier faced and facilitate learning and testing.

For me the software was better because the order of questions was matched with the order of paragraphs in the passage, but in the traditional one the questions would not follow a special order. To me the traditional testing was stressful because I did not know that how much time do I have but in the software system I had the time and I could manage it better and there was no teacher to make me anxious about the time limitation. The last thing is that the hints were so useful (Interview 1, interviewee 8).

This quote from a participant vividly shows a novel and successful experience for college students in educational programs in Iran. English students, as passive recipients of knowledge, information and input are traditionally taught on theory and practice relating to ELT. In fact, the use of conventional tests emphasizes the passivity of students without receiving any feedback; *'I think the hints are great and when you are wrong it gives you another chance to try again'* (Interview 2, interviewee 1). As another of the participants explained:

Traditional test is more related to Grammar Translation Method (GTM) that students have to memorize some rules of language and key words for answering, but in software when we answer the questions, the software works as guidance and it is aimed to increase teaching through testing. Unfortunately, we do not have enough experience about software test, if we had experience we could have answered better. When I answered one question wrong the software presented some hints but I could not use those hints properly (Interview 1, interviewee 4).

This old trend assumes students have no ability and authority to take charge of how to learn, how to monitor themselves and how to evaluate their learning using mediation and helpful hints. Students' self-development, self-regulation and critical reflection on their performance are totally neglected as it is assumed that students' knowledge and development are in hands of teachers who are at a higher level of competence and knowledge. This process leads to students' loss of self-confidence in their own actions, practices and development. Indeed, this lack of voice, such as GTM which is mentioned by the participant, does not allow students to become reflective and monitor themselves acting upon and questioning the taken-for-granted their

knowledge and facts of their own development. In contrast, alternative approaches such as the new designed software promote interactive and dialogic relationships characterized by using mediation and hints that lead to shaping and reshaping teacher and student roles; *students are not only tested but also are taught in this process.*

Using hints to find out the correct response was a further positive factor that participants mentioned in the interviews. Offering learners mediation serves simultaneous teaching and assessment functions, a diagnosis of abilities that are still in the process of forming as well as an intervention to support their development. Interviewee 10 in particular expressed how she believed it was a very important factor when deciding on the correct response: *'At the beginning when I saw the online test, I had stress but when I answered one question and I was helped by hints to find the correct answer, I felt comfortable then'* (Interview 1). Moreover, some participants did announce the role of hints as the facilitator teacher to help them when reading the text, *'I prefer all kinds of technology for the educational system and I choose the modern way because it helps us like a professional tutor by the hints and tells us about our right answers and teaches us if we are wrong'* (Interview 2, interviewee 2).

Another factor that was found to be important in testing reading comprehension via the designed software was being regarded as the immediate feedback on participants' performance. Interviewee 11 mentioned that her classmates and friends were overall happy to get the immediate response from the software and were informed about their strengths and weaknesses immediately, *'I think the software is great because students can see their results right after the test and find out about their strengths and weaknesses right after the test'* (Interview 2). In interview 1, interviewee 11 also explained that once they understood the demand of the feedback they became more appreciative, *'it is very practical because students can find their true or false answers at the moment. In the traditional test we do not have any feedbacks while in the software you receive a feedback at the moment'.*

Not only did the finding correct response immediately make a difference to the modern testing environment, remembering the correct responses and not forgetting our mistakes did too. Some participants expressed the feeling of finding correct response was a great motivator to them to continue using the software, *'I think the modern way is better because students finally find the correct answer and they never forget their mistakes'* (Interview 2, interviewee 7).

In this study, the findings are consistent with previous research (Starcic & Bagon 2014; Shute & Rahimi 2017; Debattista, 2018) in terms of the effect of using different types of technology on students' knowledge in computer assisted language learning. Overall, the previous research suggested that students tend to perform better in modern classes using computer than traditional classrooms without any new facilities. The findings might be attributed to a number of reasons. First, the students in some of the previous studies were not given appropriate hints when they answered the items in a computer-supported collaborative learning environment. However, in the present study, all the students were given helpful hints to find out the answers. Using these hints would put students at great advantage because they tend to use these ideas better in finding the keys. Second, in previous studies (e.g., Ding et al. 2011), the students collaborated with their team member(s) via text-based computer-supported learning environments. It is difficult for students to track and monitor texts in one page. However, in this study, the students were asked to find the answers using both the text and items in one page.

Conclusion

To conclude, the current study explored how the barriers and the problems of new designed software faced by college students could be overcome. Nonetheless, these barriers were

able to overcome by strong motivating factors; including understanding that CALL is a positive career choice in both teaching and testing and having a supportive environment including hints. The participants within this study have therefore demonstrated a new successful experience and have shown a common human adaption with new designed software.

The following recommendations are compiled from the literature review and the development of new software: 1. Teaching and learning should dictate the technological implementation of supporting tools and facilities, not the other way round. 2. An educational institution wishing to provide new learning opportunities needs a clear vision from an academic, technological and administrative point of view. 3. An educational institution should take time in getting to know the views and needs of its faculty and students.

Many students in the study would like to see more professors use technology and blended learning in upcoming course delivery, as they consider the integration of technology and blended reading comprehension stimulating and beneficial. There are a number of limitations in this study. Conducting a qualitative research study and adopting in-depth interviews with students could provide insight into number of questions. More studies are needed to examine if there are any interventions such as a teacher's guidance during test administration. As these conclusions are drawn from a few participants, further work is needed to determine whether this approach can be productively generalized to other student populations and domains of knowledge. Further studies are also needed to examine how classroom variables such as socio-economic status, level of technology familiarity and cultural background may affect the outcomes of this study. Finally, this study was conducted within one semester and longitudinal studies are needed to examine how different types of gender affect female and male students in using technology.

All the participants within this study identified different degrees of supportive and barriers mentioned, nonetheless all participants recognized working with computers and the testing software is a new experience worth thinking and administrating it. They have been able to respond to it within a positive way and reflect on their strengths and weaknesses by the help of hints and appropriate mediation. With increasing our understanding of the barriers and motivators faced by college students, their experience and knowledge can be promoted for these participants in future. What has been found within this study could help teachers and test designers that need to be more cautious in administrating conventional and modern testing to reduce barriers.

References

Chapelle, A. C. (2007). *The handbook of educational linguistics. In Spolsky, B. & Hult, M. F. (Ed.),* Blackwell Publishing Ltd., pp. 585-595.

Conceicao, S. (2006). Faculty lived experiences in the online environment. *Adult Education Quarterly, 57*(1), 26-45.

Cotrus, A., & Stanciu, C. (2014). A study on dynamic assessment, as a method of obtaining a high level of learning potential, untapped by conventional assessment. *Procedia Social and Behavioral Sciences, 116,* 2616-2619.

Debattista, M. (2018). A comprehensive rubric for instructional design in e-learning. *The International Journal of Information and Learning Technology, 35(2), 93-104.*

Ding, N., Bosker, R. J., & Harskamp, E. G. (2011). Exploring gender and gender pairing in the knowledge elaboration processes of students using computer-supported collaborative learning. *Computers & Education, 56(2), 325–336.*

Edwards, A.L., & Kenny, K. C. (1946). A comparison of the Thurstone and Likert techniques of attitude scale construction". *Journal of Applied Psychology, 30,* 72-83.

Grove, J. (2017). The teaching survey 2017: results and analysis. Times Higher Education (THE), available at: www.timeshighereducation.com/features/the-teaching-survey-2017-results-andanalysis (accessed 16 February 2017).

Hessamy, Gh., & Ghaderi, E. (2014). The role of dynamic assessment in the vocabulary learning of Iranian EFL learners. *Procedia Social and Behavioral Sciences, 98,* 645-652.

Kamel, S., & Wahba, K. (2003). *The use of a hybrid model in web-based education: The global campus project in web-based education: Learning from experience.* Information Science Publishing.

Keller, C., & Cernerud, L. (2002). Students' perceptions of e-learning in university education. *Journal of Educational Media, 27*(1-2), 55-67.

Liorens, A. C., Cerdan, R. & Vidal-Abarca, E. (2014). Adaptive formative feedback to improve strategic search decisions in task-oriented reading. *Journal of Computer assisted Learning, 30,* 233-251.

Mahn, H. & John-Steiner, V. (2013). Vygotsky and sociocultural approaches to teaching and learning. *In Weiner, B. I. (Ed.), John Wiley & Sons, Inc., pp. 117-145*.

Mandernach, B. J., Donnelli, E., & Dailey-Hebert, A. (2006). Learner attribute research juxtaposed with online instructor experience: Predictors of success in the accelerated, online classroom. *Journal of Educators Online,* 3(2).

Poehner, E. M. (2009). Group dynamic assessment: Mediation for the L2 classroom. *TESOL Quarterly, 43*(3), 471-49.

Poehner, E. M. (2011). Validity and interaction in the ZPD: Interpreting learner development through L2 dynamic assessment. *International Journal of Applied Linguistics, 21*(2), 244-263.

Poehner, E. M. (2013). *Dynamic assessment in second language acquisition. In Carol A. Chapelle (Ed.),* The Encyclopedia of Applied linguistics. Blackwell Publishing Ltd.

Richey, R.C. (2008). Reflections on the 2008 AECT Definitions of the Field. *Tech-Trends, Vol. 52*(1), 24-25.

Sadler-Smith, E., & Smith, P. (2004). Strategies for accommodating individuals' styles and preferences in flexible learning programmes. *British Journal of Educational Technology, Vol. 35*(4), 395-412.

Shute, V.J., & Rahimi, S. (2017). Review of computer-based assessment for learning in elementary and secondary education. *Journal of Computer Assisted Learning, 33,* 1-19.

Starcic, I. A., & Bagon, S. (2014). ICT-supported learning for inclusion of people with special needs: Review of seven educational technology journals, 1970-2011. *British Journal of Educational Technology, 45*(2), 202-230.