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Readiness towards Using Computer-Based Language Test (CBLT) among Malaysian Tertiary ESL Learners

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Abstract

The vast majority of 'Gen Z' are in the positive light about the future of technology in education. Due to the Covid-19 pandemic, there has been a shift in teaching, learning and assessing methods. To keep abreast with current technology, computer-based language test (CBLT) was used as one of the methods to assess students' language proficiency during the shift. For this study, the CBLT was adopted and conducted among students who were taking an English proficiency course in a public university mainly located in Selangor, Malaysia. They were required to sit for the test as part of the course fulfilment. Thus, the purpose of the study is to investigate whether there are significant differences in the CBLT 1, CBLT 2 and CBLT 3 scores among Business Management (BM), Social Sciences and Humanities (SSH), and Science and Technology (ST) students, who were from different branches around Malaysia. The study employed a quantitative research design in which a total of 16079 students' scores from three (3) different tests were recorded and analysed. The results of this analysis will provide insights on the conclusion that students from different programmes were able to adapt to the use of the CBLT in assessing their listening skills.

Keywords: Computer-based Language Test, Online Listening Assessment, Online Language Testing

Introduction

In recent years, the learning environment at the tertiary level has shifted from the traditional face-to-face classes to blended learning, and then to open and distance learning (ODL) ultimately when the Covid-19 pandemic happened. Due to the outbreak of the pandemic, the education sector had to shift to a full online mode of learning overnight. This dramatic transition has resulted in the rise of e-learning, or online learning. Consequently, learning, e.g. lessons, tutorials, seminar presentations, open discussions, forums, and assessments, has to be conducted remotely and through various digital platforms (Li & Farah, 2020). As such, the integration of information and communications technology (ICT) in education promotes the improvement in content delivery and knowledge sharing, paving the

way for more meaningful collaborations to take place among educators and learners (Lieyana et. al., 2022).

Furthermore, the use of technology is nothing new for the Generation Z (Gen Z) students. These students are the generation of students who are born in the year 1997-2013 (Schroth, 2019). Research has shown that this particular generation of students prefer the use of technology to be the method of learning for them (Szymkowiak et al., 2021). One of the many reasons for this preference is that this method offers flexibility as learners are provided with more freedom to learn at their own pace and time, and simultaneously improve their learning experience (Lieyana et. al., 2022). To keep abreast with this situation, a computer-based language test (CBLT) is an alternative that has been introduced to assess the four language skills, i.e. speaking, reading, writing, and listening, among university students. CBLT is an online language test that is an alternative to the traditional pen-and-paper language test in the form of a software package and it allows students to take an online language test regardless of their location, as long as they have a good Internet connection. It is also important to note that this type of testing method provides more credibility to the test and minimises the risk of cheating as the questions could be randomised, in which each student will get a different set of questions.

The shift from traditional classroom to online learning has highlighted the importance of technology in education (Raja & Nagasubramani, 2018), including in the teaching and learning of English. Thus, a CBLT would allow students to take a language test at their own preferred time within a specific duration, giving students the flexibility to choose a time they deem suitable for them. In an English classroom, particularly one where the students are second or foreign language learners, the ability to listen effectively is pivotal because it provides input (Ritonga et al., 2021). With input, learners are then able to produce comprehensible output inside the classroom, and thus applying this skill in the real world (Chang et al., 2021). To successfully apply listening skills, learners are required to identify speech sounds, meanings of words, sentence structure, stress, and intonation (Astuti, 2020). Learners will then be able to interpret the sounds into meanings, construct meanings from the messages received to allow for relevant responses to take place (Saraswaty, 2018). Nevertheless, some second and/or foreign language learners face difficulties in producing comprehensible output due to factors such as variation in learners' language level, skills in interpreting and comprehending, and background knowledge (Ming, 2019). Therefore, in the times of a pandemic, technology must be used to ensure the continuous improvement of English language learners' listening skills.

Listening is of particular importance because without the ability to listen effectively in a target language, a speaker may not be able to speak and function effectively in the language (Nhat, 2021). This skill is an essential skill because it portrays the understanding of the spoken language (Shariyevna & Atxamovna, 2020). Furthermore, listening skills is not only an important skill in a language acquisition, it is also very crucial in learning subjects (Kusumawati & Srijono, 2020) for without the ability to properly listen, one may not be able to truly comprehend the need of a certain subject. Nevertheless, listening is one of the most difficult skills to master and is often overlooked in the curriculum (Ha & Ngo, 2021). Given the sudden shift brought about by the pandemic, educators had to quickly identify the methods to ensure that learners were able to still continue acquiring the listening skills. As such, implementing a CBLT in testing listening skills will bring many benefits to this particular group of students, which is a complement to their abilities and preferences in learning.

Although the use of computer-based tests is becoming the main tool of assessment, a few concerns and issues have been raised. Despite being a beneficial tool for teaching and learning during a pandemic, there are concerns regarding the students' scores. Even though the Gen Z students are familiar with technology, there could be potential risks that could create a significant difference in the marks that they would score in a traditional pen-and-paper test. Risks, such as test-anxiety given that students had to adapt to a dramatically different mode of learning, could potentially lead to a noticeable decrease in their test scores. Students' anxiety in learning could have detrimental effects on their learning environment, and even their mental health (Sabri et al., 2021). Thus, this study aims to investigate whether there are any significant differences that could impact and have an influence on the test scores among three programme clusters that have experienced the CBLT.

The research question that guides this study is: Are there any significant differences in the scores for three CBLTs (CBLT 1, CBLT 2, and CBLT 3) among Business Management (BM), Social Sciences and Humanities (SSH), and Science and Technology (ST) students?

Internet Connectivity during COVID-19 Pandemic

With the appearance of new technologies, and the sudden outbreak of a global-scale pandemic, online language testing has become the new and modern mode of language assessment. The incorporation of technology in education has been the practice since the start of the 21st century, and has become a valuable skill to be mastered (Ratheeswari, 2018). Educational institutions the world over have since then actively started applying blended learning, flipped classrooms, and various digital resources into language tests and assessments. This is especially more significant in the context of higher education given that students in higher institutions of learning are independent learners and more able to cope with the advancement of technology (Latorre-Coscolluela et al., 2021). Apart from that, the use of technology in education, especially to test language skills, has proven to offer effective solutions for educators and learners alike during a worldwide pandemic (Rerung & Hartono, 2020). Studies have shown that this particular group of students, the Gen Z students, are true digital natives (Chicca & Shellenbarger, 2018) yet, learners, especially foreign language learners, might still experience anxiety when learning a language, despite being in a learning environment they feel comfortable in (Russel, 2020).

Education is one of the domains that was hugely affected when the pandemic hit the world as the pandemic forced all learning, teaching, and assessments to be conducted online making Internet connection a vital key in ensuring the ease of transition. The use of the Internet has increased rapidly since the pandemic hit the world with an addition of 782 million users in two years since 2019 (United Nations, 2021). In Malaysia alone, Internet usage spiked from 3.7 hours time spent online to 4.8 hours per day during the MCO and 4.2 hours per day after the pandemic (Malaysian Investment Development Authority, 2020). Even though Internet users have increased these recent years, there are still many who could not access the Internet, especially the students when having online classes (Aboegye, 2020). One of the major problems that most of the Gen Z students faced is poor Internet connectivity when participating in online classes. Thus, it will affect the teaching and learning practices. Having said that, those without Internet connection will be left out from the world as they will not get connected with the world (De et al., 2020). They mentioned that this happened because the new routines during the pandemic have shifted from face-to-face to online. Thus, this will be a big challenge to the students to learn during this season. Some of the students could not

afford to access the Internet for online classes which will make them be left out from the teaching and learning practices.

Readiness towards Online Testing among Students

Readiness is vital in ensuring the success of education-instruction process and is an important input for learning-teaching system (Bloom, 1995 as cited in Engin, 2017). The and Usagawa (2018) highlighted the necessity of measuring the readiness prior to the implementation of e-learning as it gives awareness to the university of what is required among the students, psychologically and technically. They added that this highlights the degree of preparedness required by a university or organisation of the implementation. A study conducted by Ranganathan et. al (2021) found that physiotherapy undergraduates in four tertiary institutions in Malaysia had moderate to high levels of readiness towards online learning with ($M = 3.7 \pm 0.5$) towards technical competencies, ($M = 3.7 \pm 0.6$) towards social competencies with instructor, ($M = 3.8 \pm 0.6$) towards competencies with classmates and ($M = 3.6 \pm 0.5$) towards communication competencies. Besides that, a study on 91 students in a higher learning institution in Malaysia showed that students' readiness was high in computer self-efficacy, moderate for motivation and self-directed learning and low for control among learners (Chung et. al., 2020). A study by Olayemi et. al (2021) found that a majority of 140 undergraduate students in a university in Nigeria had a high level of readiness towards online learning with a majority of them demonstrating high levels of ICT skills. However, there are concerns on cost of Internet data, poor Internet connectivity, unstable electricity power supply, scarcity of library resources and limited access to learning devices (Kamaruzaman et al., 2021). A study by Yusof et. al (2021) also found that Internet connection and data limitation were issues for some students causing interruptions in live class and tests. These results show that students' readiness varies from high to low levels among learners.

Engin (2017) stated that the factors of self-confidence, self-knowledge, self-control to communicate and self-expression may influence students' readiness towards online learning. He further revealed that students with high levels of social skills could be more successful in self-directed learning such as carrying study plans, solving problems encountered in learning, managing time effectively and having high expectations for performance. Thus, it can be seen that there are many factors that could influence students' readiness. Although many studies have been conducted among university students regarding their readiness towards online learning, there are limited studies conducted specifically among undergraduates to infer the readiness towards online assessment. In relation to this, The and Usagawa (2018) stated that while many developed countries have stepped forward to integrate e-learning in higher education learning, the effective ones are yet to be implemented. The scarcity in e-learning assessments and the lack of research are some of the challenges in making e-learning a success. Thus, this study intends to fill in this gap by investigating students' readiness towards using a computer-based language test among Malaysian tertiary students which involves online assessment.

Computer-Based Language Test (CBLT) and Its Issues

Generally, computer-based language tests are used to assess students' language proficiency in terms of vocabulary, speaking, writing, reading and listening (Booth, 2019). Despite the gap in ICT skills and knowledge, educators and students would benefit so much from the use of an instructional module design, such as the CBLT, in the acquisition of the

listening skill (Alodwan & Almosa, 2018). A CBLT does not only allow for the possibility of online assessment to take place during ODL, it also has paved the path for more innovations on language testing (Marionon et al., 2021). Multimedia elements such as audios, images, videos, and animations could be integrated into CBLTs, making any assessment to be more interesting and in turn, able to increase learners' performance (Abdulrahman et al., 2020). Apart from that, computers have the ability to do complex calculations quickly and more accurately compared to humans (Tai, 2020). Moreover, technology has made it possible for computers to grade tests and assessments, making it more convenient for instructors and teachers (Oz & Ozturan, 2018). The main criteria of CBLT are rapidity, fairness, authenticity and reliability making it a great tool or assessment method to be adopted in assessing students' abilities (Minglie, 2017). As stated by Oz and Ozturan (2018), computerised assessments allow for reduction of the "lag time" in obtaining scores, giving feedback and announcing students' scores, which results in efficiency of assessment. Minglie (2017) found that CBLT could be seen as the future assessment tool as the modernisation of CBLT contributes to the improvement of quality of language teaching and testing. Therefore, it is beneficial to investigate the success of implementing CBLTs in acquiring English listening skills for Malaysian university students.

Nevertheless, there are some issues pertaining to adopting and administering CBLT. Jamiludin et. al (2017) stated that students' readiness plays a vital role in determining the success of implementing CBLT as their ability to use a computer or laptop could influence their scores where those with better skills might score better than the rest. They also added that students' ability and familiarity in using computers is highly influenced by the availability of technological facilities, which might differ from one student to another. Sulastri's (2019) study found that other factors that may compromise the success of a CBLT are due to the limited provision of computers at universities or schools, unstable Internet connection and electricity. She further elaborated that these issues however could be solved by providing better facilities in terms of increasing the number of computers and bandwidth for the Internet. Besides that, Adnan and Anwar's (2020) study found that the limited access to the Internet and its technicalities is particularly in underdeveloped countries. In a study by Matthew and Chung (2020), it was found that the undergraduate students in a university in Malaysia had average quality of Internet connection with the highest percentage of 46.9% and the least with poor internet connection quality, 6.3 % when they were asked to rate their internet connection. It can be concluded that one of the major issues in implementing CBLT in tertiary education in Malaysia is the Internet connectivity. Thus, these issues should be addressed as they may cause distress and frustration among students and lower their concentration if they are faced with these problems during the test (Sulastri, 2019).

Methodology

A quantitative research design was utilised to investigate and identify if there are any significant differences in listening test scores for diploma students from different programme clusters. The data for this analysis were collected from a language faculty from a public university in Selangor, Malaysia. A total of 16079 students' scores from three (3) different tests were obtained. The students were from three (3) different programme clusters which consist of business and management (B&M), science and technology (S&T), and social sciences and humanities (SS&H) and are currently studying in different branches of the university. Each student was allocated an ID number to ensure easy tracking of the results.

The data were also checked for blank scores and a total of 3670 students' were deleted as their test scores data were incomplete. A total of fifty (50) repeated names were detected and subsequently removed from the data.

A two-stage sampling technique was performed in this study. The first stage employed cluster sampling in order to ensure a sufficient representative of students from the three (3) different programme clusters. Next, simple random sampling was conducted in the selection of the students using Microsoft Excel random function which produced a finalised number of 3600 students' test scores. This study employed a one-way analysis of variance (ANOVA) to answer the research question using the SPSS application.

For this study, the instrument used was the computer-based language test (CBLT). It is an online listening test conducted by the faculty to assess its students' listening proficiency. The CBLT is a stand alone online listening assessment software package for diploma students taking the English proficiency subjects. This test made it possible for students to complete their listening assessment regardless of their locations using the computer, laptop or smartphones. The stages involved in preparing the package are creating the test bank, transferring the contents into the package and testing of the package before it is confirmed as ready to be used. The package containing the questions would then be disseminated by the person-in-charge to the respective students. Once the package reaches the students, the students would be able to take the test during their preferred time, provided it was done within the stipulated duration. As stated by Minglie (2017), this is so as to make the test results reflect the true ability of candidates as much as possible. Lecturers do not need to administer the test like the traditional pen-and-paper test; they do not have to be present during the test physically or be in front of the screen of their computers or laptops at another end. Besides that, the CBLT also allows for creation of randomised sets of questions the moment students log on into the system, which was generated based on the big data from the test banks. This would minimise the chances of getting similar sets of questions for the students.

Descriptive Results

A one-way between-groups analysis of variance was conducted to explore the difference in test scores among students from three (3) programme clusters. The programme clusters encompass science and technology (S&T), business and management (B&M), social sciences and humanities (SS&H). The result was displayed in Table 1.

Table 1

Result of CBLT 1, CBLT 2 and CBLT 3

Descriptives								
Test123	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Science & Technology	1200	15.7483	1.80219	.05202	15.6463	15.8504	8.00	20.00
Business & Management	1200	15.5611	1.79626	.05185	15.4594	15.6628	7.67	19.00
Social Sciences & Humanities	1200	15.1389	2.15328	.06216	15.0169	15.2608	6.33	19.67
Total	3600	15.4828	1.94078	.03235	15.4194	15.5462	6.33	20.00

Based on Table 1, the highest mean was recorded by S&T students with 15.7483 , followed by B&M and SS&H with M=15.5611 and M=15.1389 respectively.

ANOVA Results

Table 2

ANOVA Results

ANOVA					
Test123					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	233.899	2	116.949	31.576	.000
Within Groups	13322.145	3597	3.704		
Total	13556.043	3599			

Table 3

Multiple Comparison of CBLT 1, CBLT 2 and CBLT 3

Multiple Comparisons						
Dependent Variable: Test123						
Tukey HSD						
(I) Cluster_Code	(J) Cluster_Code	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Science & Technology	Business & Management	.18722*	.07857	.045	.0030	.3714
	Social Sciences & Humanities	.60944*	.07857	.000	.4252	.7937
Business & Management	Science & Technology	-.18722*	.07857	.045	-.3714	-.0030
	Social Sciences & Humanities	.42222*	.07857	.000	.2380	.6064
Social Sciences & Humanities	Science & Technology	-.60944*	.07857	.000	-.7937	-.4252
	Business & Management	-.42222*	.07857	.000	-.6064	-.2380

*. The mean difference is significant at the 0.05 level.

Table 2 reports that there was a statistically significant difference at the $p < 0.05$ level in test scores for the three programme clusters: $F(2,3597) = 31.6, p = 0.000$. Despite reaching statistical significance, the actual difference in mean scores between the groups was small (refer Table 1). The effect size, calculated using eta squared, was 0.01. Post-hoc comparisons using the Tukey HSD test indicated that the mean scores for all three (3) programme clusters; S&T ($M = 15.75, SD = 1.80$), B&M ($M = 15.56, SD = 1.80$), and SS&H ($M = 15.14, SD = 2.15$) were significantly different ($p < 0.05$) as reported in Table 3. Figure 1 illustrates that S&T had the highest mean scores while SS&H students demonstrated the lowest mean scores.

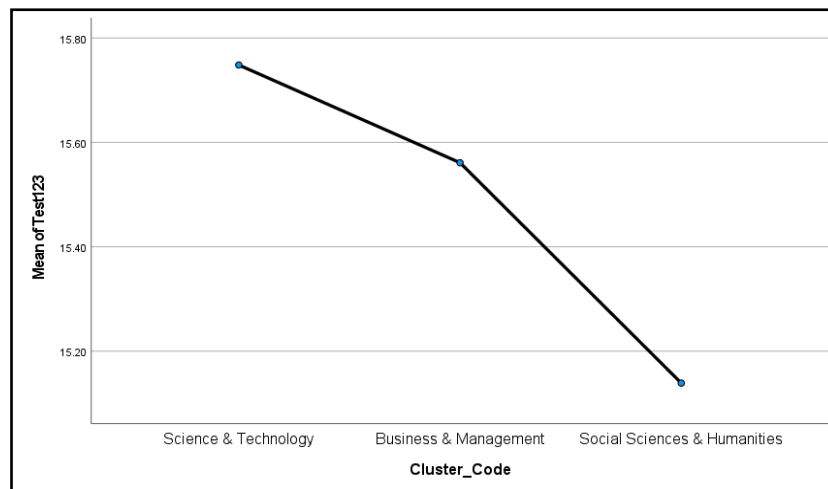


Figure 1: Mean of CBLT 1, CBLT 2 and CBLT 3

Based on the findings, $p < 0.05$, hence there was a significant difference in CBLT 1, CBLT 2 and CBLT 3 scores among Business Management (BM), Social Sciences and Humanities (SSH), and Science and Technology (ST) students.

Discussions and Conclusions

Based on the findings, there are significant differences among the three programme clusters. Nevertheless, the actual difference in mean scores between the groups was small. This shows that the CBLTs are relevant and acceptable by all the students of the different clusters. The small difference in the mean score also highlights that the tests are highly reliable. Students were able to respond to the questions effectively and managed to sit for the test regardless of their locations around Malaysia. The students' results fall within the same range and did not show too much gap from each cluster. This shows that despite their different level of language skills and background of fields, the tests managed to be comprehended by the students.

Besides that, the small difference also shows that there was less test anxiety among the students. This is probably because most students are familiar with technology. They were not intimidated when asked to use their smartphones and laptops for the test. As stated by Jamiludin et. al (2017), students who are familiar and good with technology may have the advantage of scoring well during CBLT. When students are confident with their computer skills, this may lessen their anxiety when answering CBLT. This is congruent to Lee and Wu's (2017) study where they found that test anxiety can negatively impact students' test performance which prevents them from achieving their full potential. Most students are able to solve problems and complete the test within the time given. This is supported by Eigin's (2017) study in which he found that students who possess high level of self-directed learning are good at carrying study plans, solving problems encountered in learning and managing time effectively. Besides that, the interesting design of interface, the use of multimedia elements such as audio and interactive nature of CBLT may also contribute to less anxiety among the students. As stated by Minglie (2017), such kind of authentic feelings help to relieve the tension and anxiety among the test takers. Additionally, during the CBLTs that were conducted among the three clusters of students, they were given ample time to complete the tests in their preferred time. It is interesting to note that the students were given a five day period to complete the tests which helped to reduce their anxiety level.

Despite the small difference in the mean of marks, some students could have faced some issues when answering CBLT. One of the main issues was possibly their Internet connectivity. Students could have faced limited Internet connectivity and low quality of service when having online classes and doing online assessments. This is supported by Aboegye's (2020) study where he stated that although there has been a great increase in Internet users, there are still many who could not have good access to the Internet, especially the students. Students also may have had issues in terms of the availability of devices such as computers, laptops and smartphones. They probably had to share the devices with other siblings or parents. As stated by Sulastri (2019), the success of CBLT may be affected by the scarcity of available devices and limited bandwidth of Internet connection. Such issues are quite common in underdeveloped (Adnan & Anwar, 2020) and developing countries. Even though students faced such issues, students were still able to submit their marks for the three tests (CBLT 1, CBLT 2, and CBLT 3). The main reason for this was because the students received guidelines and technical assistance from their instructors, and this has proven to be an additional benefit in increasing their test scores.

In conclusion, although the students were from different clusters, they were able to adapt to the transition from traditional assessments to online assessments. The findings of this study have shown that students from these three clusters are ready to accept online assessments such as CBLT. Furthermore, the implementation of CBLT among the three clusters of students in a local university greatly benefits both the lecturers and students despite the issues faced. One suggestion from this study is for all parties involved to minimise any potential technical issues. Additionally, CBLT can be a platform to improve the quality of online assessments. However, the results could not be generalised to all tertiary institutions as this study only involves one public tertiary institution in Malaysia. It is recommended that future research be conducted in the area of readiness towards CBLT using a qualitative approach involving other local public and/or private universities.

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