

# The Use of “Scratch and Challenge Board” as an Alternative Assessment Tool to Enhance University Students’ Skills

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**Abstract:** In the teaching and learning process, assessment can be applied in various ways. In order to ensure the quality of education, assessment should be performed as a platform to support student learning. The role of assessment also ensures that students’ learning outcomes meet the needs of the 21<sup>st</sup> century skills. “Scratch & Challenge Board” (SCB) can be used to support the 21<sup>st</sup> century teaching and learning environment through focus group discussions. Therefore, the aim of this study was to explore the perspectives of university students on the use of “Scratch & Challenge Board” as an alternative assessment tool in enhancing students’ skills. This study applied the qualitative research approach. Data were collected through focus group interviews and related documents such as students’ assignments. A total of 10 focus group were obtained, with 3-4 students in each group, and each discussion was moderated by an experienced moderator. Collected data were analysed using constant comparative data analysis methods to obtain the themes. Four (4) themes emerged in this study: (i) alternative assessment encourages active participation in learning, (ii) integrating technologies in assessment tools, (iii) relevant with 21<sup>st</sup> century skills, and (iv) improvement in learning environment. In conclusion, the “Scratch and Challenge Board” is an assessment tool that not only supports face-to-face teaching and learning, but can also be integrated with technological devices and social media platforms. The “Scratch and Challenge Board” also enhances students’ 21<sup>st</sup> century skills

**Keywords:** Assessment tool, Alternative assessment, Group discussion, Teaching innovation

## 1. Introduction

Education is the key to nation building. The interaction in the classroom is often between lecturer and students, or between students and students. In the process of teaching and learning, teaching refers to the participation of teachers in the process of instructing and imparting knowledge to students, whereas learning refers to the participation of students in the process of establishing knowledge (Smith, 2018). The role of a university lecturer is to cultivate, develop and enhance a student’s potential in learning. Another important component in the teaching and learning process is assessment. Assessment is important as it involves the collection of information with regards to students’ learning as well as lecturers’ teaching. This can be observed by how a lecturer spends most of their time designing and

conducting assessment activities. Assessments can be used as a tool to collect information, such as regarding the lecturer's evaluation on his/her teaching methods, and at the same time, it can also be used to make professional judgements on students' performance in every teaching and learning process undertaken (Marriam, Nazia & Muhammad Tanveer, 2018; Sulaiman, Wong, Abdullah & Subramaniam, 2020).

Assessments in education are applied in various ways, especially in the teaching and learning process. In addition to this, assessments not only provide assistance to lecturers and students but also provide help to education administrators, education researchers and other education stakeholders to obtain useful information, so as to better decide whether to strengthen education strategies or to enhance education plans to improve education (Pellegrino, 2014). Aside from this, there are two forms of assessment, namely traditional assessment (multiple choice question, fill in the blanks question, true and false question) and alternative assessment (projects, open-ended question, journal writing). The first focuses more on scores, however the latter focuses more on the student's performance in the process of learning (Sulaiman, Abdul Rahim, Hakim, Omar, 2019).

On a global scale, the current generation needs to adapt to the challenges of the 21st century world. Therefore, Malaysia's education system introduced Higher Order Thinking Skills (HOTS) in the year 2013. In the Malaysian Education Blueprint (MEB 2013-2025), the blueprint requires teachers to educate or stimulate students' 21st century skills as well as encourage students to apply 21st century skills, such as critical thinking skills, communication skills, problem solving skills, and collaboration ability (Hiong, 2017; Sulaiman, Kuppusamy, Ayub, & Abdul Rahim, 2017). The 21st century teaching and learning classroom environment has yet to be regarded as a success as students still struggle to apply critical thinking skills outside the classroom, and they are still incompetent in solving real life problems (Seman, Yusoff, & Embong, 2017; Siti Ruzila, Roslinda & Effandi, 2016). In the current teaching and learning environment, teachers are still struggling to incorporate 21st century skills in the classroom. Thus, coupled with the lack of integration in the teaching and learning process, the 21<sup>st</sup> century might be a big challenge for teachers and students (Norhaqikah & Kamisah, 2016; Hiong, 2017).

In light of this, the world is striving to create a 21st century teaching and learning environment. The teacher plays an important role in cultivating students' cognitive skills such as creativity, as well as challenging and stimulating students to think and to see situations differently in classroom activities, which should be encouraged among students (Abdul Hamid & Kamarudin, 2021). Therefore, the purpose of this research is to introduce an alternative assessment tool named "Scratch and Challenge Board" to help or improve the 21st century teaching and learning environment, with the engagement of this tool in focus group discussion activities among university students. This research is related to the use of the "Scratch and Challenge Board" and addresses the practical tasks in assisting lecturers and students in the 21st century teaching and learning environment.

## **2. Literature Review**

Teaching and learning in the 21st century have changed, and at the same time, students in the 21st century have become more mature than students from previous times, and education methods have also changed from teacher-centered to student-centered based on relevance (Sardar, 2018). To become an effective lecturer is not an easy task. The lecturer must be aware of his/her changing role and should adopt the 21st century culture to understand and adapt to the need of students. For instance, an effective lecturer in teaching science not only teaches these concepts, but also makes the lesson relevant and applicable to the students' daily life (Johnson & McElroy, 2012). Also, in order to ensure the quality of education by making sure students' learning outcomes are addressing 21st century skills, assessment ought to be performed as a platform to support student learning (Varatharaj, 2018). There are two forms of assessment; traditional assessment and alternative assessment. Alternative assessment is also known as authentic assessment, portfolio assessment, and performance assessment (Petre, 2017; Dikli, 2003). The skills of the 21st century consists of 3Rs and 7Cs. 3Rs stands for Reading, wRiting and aRithmetic, whilst, 7Cs stands for Critical thinking & problem-solving, Creativity & innovation, Collaboration, teamwork & leadership, Cross-cultural understanding, Communication & media fluency, Computing & ICT fluency, and Career & learning self-reliance (Trilling & Fadel, 2009). These 21st century skills are very important and needed by university graduates to meet the workplace challenges.

## **2.1 Alternative Assessment**

Assessment is an important component of education at all levels. As lecturers, how do we know that we have fulfilled the requirements of the course in the process of delivering knowledge content? The answer is through assessment. In the current study, alternative assessment is the focus and this type of assessment can be a summative assessment or formative assessment, depending on the purpose of the assessment. Examples of alternative assessments are presentations, role-plays, portfolios, journal writing, mini conferencing, and discussion (Abdul Rahim & Sulaiman, 2006). Alternative assessment gives students the opportunity to apply the knowledge and skills they have acquired in solving problems in particular situations.

Summative assessment refers to the assessment in the form of final examinations or final tests; it is a type of assessment used to test and track the students' level of achievement after a certain period of time (Qu & Zhang, 2013). These summative assessments are carried out at the end of teaching and at the end of the semester. These assessments are completed by students who have completed their studies after a certain period of time, for instance, the completion of a bachelor programme. Students are then required to sit for a final exam which aims to assess students' achievement. In addition, besides summative assessment, another common assessment is formative assessment. Formative assessment is an ongoing assessment that aims to assess students' understanding of the curriculum through formal or informal tests. Formative assessment is applicable to the entire learning process, and it records the daily learning progress of students (Qu & Zhang, 2013). Examples of formative assessments are assignments and quizzes, so lecturers can identify the weaknesses in their current teaching methods.

Even though summative assessment and formative assessment are common assessments applied in education, alternative assessment is another form of assessment that is the current trend. Alternative assessment is widely used in the teaching and learning environment to serve the purposes of both summative and formative assessments. Alternative assessment has been proven to be capable in stimulating and encouraging students to actively engage in discussions, presentations and open-ended questions. Moreover, it also encourages student involvement in information seeking, thinking and creating knowledge activities as well as promote a higher level of cognitive development, presentation skills and the ability to build up self confidence among students. (Maclellan, 2004). Alternative assessment is carried out continuously, fairly, and transparently according to standards to assess the ability and performance of students. According to Al-Mahrooqi & Denman (2018), alternative assessment is another way for lecturers to obtain information about students' academic achievement. Alternative assessment can be carried out through writing, presentation, demonstration, and collaboration. This form of assessment allows lecturers to assess students' ability to integrate relevant knowledge and skills into real-life situations as well as apply higher-order thinking skills (Abdul Rahim & Sulaiman, 2006; Sulaiman, et al., 2020). Currently, in the 21st century teaching and learning environment, the teaching and learning process has gradually moved to online teaching platforms. Compared with traditional assessment, alternative assessment would be more beneficial to the 21st century learners (Dikli, 2003). Additionally, assessment is included in the learning environment and it is not enough to merely apply traditional assessment to measure the learning outcomes of students in a course. Alternative assessments need to be implemented as well (Maclellan, 2004). This is because alternative assessment is different from traditional assessment. Examples of alternative assessments include performance assessment and portfolio assessment (National Research Council, 2001), which require students to integrate their learned knowledge and present in a innovative way, making the learning environment more interesting.

Education has vast innovations in the 21st century teaching and learning. The teaching and learning process is no longer limited to the classroom, but can take place in a remote environment, for instance, distance learning or home learning. Indeed, education stakeholders have recognized the potential and necessity of technology in education, because connecting Information and Communication Technology (ICT) and Social Networking Sites (SNS) with the internet can give lecturers and students the opportunity to promote the growth of 21st century skills in the 21st century teaching and learning environment (Garba, Byabazaire & Busthami, 2015). For instance, the rise in the existence of social media is to bring convenience to people for easier communication. Students especially for university students and college students, have discussions regarding their studies through the use of social media. The influence of social media on teaching and learning environment is

increasing every year and its applications can strengthen classroom materials, positively influenced discussions and collaborative work which is related to 21st century skills (Devi, Gouthami, & Lakshmi, 2019).

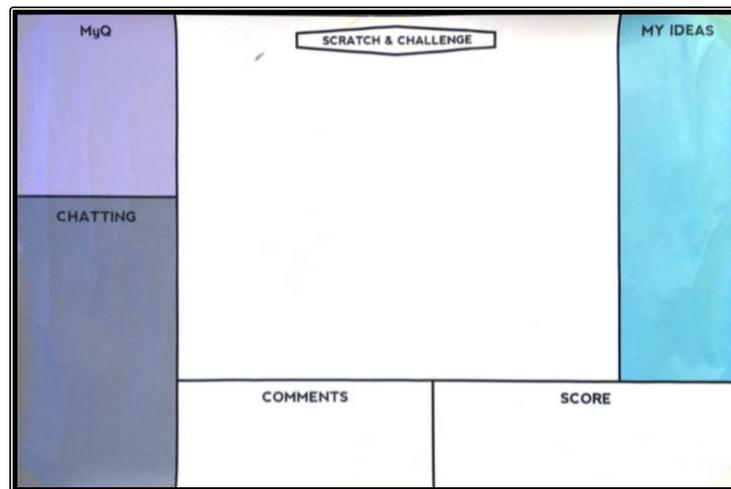
Furthermore, with the advancement of educational technology, 21st-century educators need to apply immersive teaching of ICT and SNS to ensure that the focus of education is on preparing today's students for the future (Rahmat, Leng, & Mashudi, 2020). The incorporation of ICT and SNS in the classroom allows the lecturers to use these platforms for teaching as well as for communication. Through the use of emails and social networks, lecturers are able to design students' assessment and lesson plans (Garba et al., 2015). New trends in education have indirectly empowered the use of ICT and SNS. Generally, Facebook, Twitter, Instagram, and Flickr have become an integral part of people's daily life, including students, instructors and researchers. In the current pandemic situation, there has been an increase in the use of social media in supporting the teaching process, and has aroused increasing interest among students, teachers and researchers (Ozcakir, Erkoç and & Ozcakir, 2015). Social media has helped boost education a great deal as it created a new era to either visual learner, auditory learner or kinesthetic learner to learn new knowledge and information without the limitation of time and space (Dogruer, Eyyam, & Menevis, 2011). Moreover, online assessment such as e-portfolio enable students to develop their soft skills, creativity, digital literacy, and critical thinking (Siti Nazura & Farah, 2019). Through the use of alternative assessments, students have the opportunity to apply the online learning methods to improve their ICT skills.

## **2.2 Scratch and Challenge Board**

Assessment is very crucial in education as it is an integral part of teaching and learning. Assessment assist lecturers in collecting information about whether they have achieved their teaching goals and to evaluate what students have learnt in class (Sulaiman, et al., 2020). "Scratch and Challenge Board" is a tool that invites students' to formulate creative ideas and at the same time, share their work with others.

The application of "Scratch and Challenge" is suitable to enhance teaching and learning activities. With the immersion of pandemic pedagogy and technology, at this juncture, "Scratch and Challenge Board" can be implemented and facilitate lecturers to observe and assess students' potential and learning skills such as creative thinking, critical thinking, leadership, and communication.

Additionally, the "Scratch and Challenge Board" is an alternative assessment that assesses student performance through written tasks, presentations, actions, peer and group activities or a combination of all of these. Therefore, the "Scratch and Challenge Board" would represent a new platform for the teaching and learning. Moreover, the "Scratch and Challenge Board" is a method of visualizing creative ideas in a collaborative manner, which combines different materials such as images, colours, and visual effects. It aims to enhance students' academic performance in cognitive, affective, and soft skill aspects, which are consistent with the skills in the development of higher order thinking in the 21st century, such as problem solving skills, creativity, and critical thinking (Zurairan Rahimi, Sulaiman, Abdul Rahim, Mohamad, & Ibrahim, 2019). Figure 1 shows the frame concept of "Scratch and Challenge Board".



**Fig.1** “Scratch and Challenge Board”

The “Scratch and Challenge Board” consists of six elements. The main column of the “Scratch & Challenge Board” include “My Idea”, “MyQ”, “Chatting”, “Comments” and “Score”. Each component has its own respective roles. Firstly, in the main column of “Scratch and Challenge Board”, lecturers can provide mind maps, quiz questions, poster infographics or conceptual content framework. These symbolize the main focus of the day; Secondly, in “My Idea”, the space provided is used to share ideas, opinions, points and one’s understanding of the topics; Third, “MyQ” is a question raised by other group members, so the lecturer can immediately capture the level of the students’ understanding; Fourth, “Chatting” is for students and group members as a space to interact; Fifth, “Comments” are designed for students to comment, and lecturers could also provide feedback in the “Comments” section; Finally, the “Score” section is intended to provide the scores of other group members or from the lecturer.

The main aim of this study was to explore students’ perspectives of “Scratch & Challenge Board” as an alternative assessment tool towards students’ skills. The study investigated the following research question: what are students’ perspectives of “Scratch & Challenge Board” as an alternative assessment tool towards students’ skills?

### 3. Methodology

This paper discusses university students’ understanding in conducting the assessment tool, “Scratch and Challenge Board”. In this section, we describe the study participants, how our data were obtained and analysed, as well as the validity and reliability of the study. To gauge university students’ understanding in conducting the assessment tool, “Scratch and Challenge Board”, a qualitative research methodology has been employed in this study. Qualitative research basically involves multiple aspects in the process of seeking research answers. For instance, it is used in seeking a detailed description of feelings, opinions, experiences and the interpretations of their behavioural meanings.

The use of qualitative research method can also help researchers to discover and understand the participants’ inner experience and meaning held (Denzin, 1989; Rahman, 2017). Therefore, the qualitative research method was selected because the focus of the study was to the explore university students’ perspectives on the use of the “Scratch and Challenge Board” as an alternative assessment tool to facilitate the assessment process involving lecturers and students, as well as to integrate teaching and learning activities into education. This study used interviews and documents to collect the data from focus groups.

Focus group discussions are widely used in various research fields, such as market research, social science research, counselling, education, and health care (Krueger & Casey, 2000). The benefits of using focus group discussions in the current study is that such focus group discussions could reduce the bias of personal interviews in order to collect rich and in-depth data. In addition, in focus group interviews, participants can reveal a high level of understanding and provide or exchange opinions

following discussions with other member in the group (Doody, Slevin & Taggart, 2013; Then, Rankin, & Ali, 2014). Each focus group discussion consists of a group of 3-4 students, and the duration of the discussion would be approximately thirty minutes. However, prior to the start of the focus group discussion, the consent of the students has been obtained

This study involves ten groups of university students from one public university in Malaysia. This number of participants provided sufficient information. As mentioned by Patton (2002), there are no rules or guidelines for the size of the sample in the qualitative investigation. Sample size and data analysis is a continuous process, until a saturation point is reached where no further relevant information may be discovered (Creswell, 2008). Moreover, the number of individuals is not the main concern of qualitative research. Instead, the phenomenon under the study is the prime concern (Creswell, 2008). In this study, all the students who participated have sufficient experiences in technology application, especially in education, because they are required to take educational technology courses throughout this programme. All of the students that participated are in the same academic year and background in university, and are enrolled for an Education degree. The programme and course in this research were purposively selected. The selection of this programme and course was based on 'typical case sampling' merely because such groups represent the typical phenomenon of interest (Merriam & Grenier, 2019). On the other hand, this research uses a more effective approach to grasp the understanding of university students in using "Scratch and Challenge Board".

The research employed a qualitative research methodology, which took one semester (14 weeks) to gather the data. The findings were based on the analysis of descriptive data from interviews with ten (10) groups of university students and discussion observations. For this research focus group, interviews were administered to gain insight into the actual understanding of the university students (Creswell & Poth, 2016). The groups' assignment was also analysed in order to get a better understanding of the phenomenon. A preliminary study was conducted before the actual study, to test the feasibility and appropriateness of the interview and observation protocol. The interview questions were further refined as a result of the preliminary study. This research had utilized a constant comparative method of data analysis (Glaser & Strauss, 1999). This involved the process of coding, categorizing, and establishing patterns from information that emerged from the data gathered. All the audio recordings were iteratively transcribed and analysed, where the researchers replicated the data collection and analysis process back and forth until the data saturation point was reached. The refining of thematic structure requires rational and intuitive reasoning in ensuring that the research aims are properly addressed (Glaser & Strauss, 1999).

The interview protocol's validity and reliability has been achieved through peer review. Peer review is considered as one of the most dependable techniques used to enhance qualitative research's credibility and trustworthiness (Merriam & Grenier, 2019). This technique involves the use of external experts in a given field of study. Two scholars in the field of assessment had reviewed the interview protocol and the established themes during the data analysis process. Triangulation strategy was employed to increase the trustworthiness of the analysis. To avoid bias, triangulation is one of the strategies in qualitative research to strengthen and enhance the internal validity of the study. Triangulation refers to the use of more than one approach when investigating a research problem, in order to maximize confidence in the findings (Bryman, 2006). This research involves data and methodology triangulation. The information came from several techniques, and data was collected at various points in time and from a wide range of sources. In this particular research, prolonged and consistent fieldwork was conducted to enhance the internal validity and reliability of qualitative research (Wallen & Fraenkel, 2013).

### **3.1 Participants**

The participants were students from a public university in Malaysia. At the same time, they were also registered in the Assessment in Learning course. These students are familiar with and used the "Scratch and Challenge Board" in the assignment. This is important in group discussions because homogenous groups are highly encouraged (Krueger, 1994). However, they are meticulously selected according to the research purpose and understanding of the available research resources. Assessment covers learning events which are linked to any subjects (Swaffield, 2008). Assessment also requires people to think outside the box (Hargreaves, 2005). Therefore, students registered in the Assessment

in Learning course need to read, digest, understand, and reflect on the contents of the course, which comes from lectures and tutorial classes, and it is compulsory for students to complete assignments given by the course instructors.

A total of 36 undergraduate programme students participated in this focus group discussion. This study employed purposive sampling as the method of selecting participants for a focus group. This criterion for selecting participants is to make sure that the selected members will provide the best information for the study (Dawson, Manderson, & Tallo, 1993). In the current study, members are selected through purposive sampling. This method is more suitable as this is a completely qualitative study. Additionally, the purposive sampling method is applied because the feature of focus group discussions requires members to have the ability and capacity to provide relevant information for the research (Morgan, 1988; Etikan, Musa, & Alkassim, 2016). In fact, purposive sampling method allows the researcher to select members with rich information and to conduct an in-depth research in a safe and comfortable environment (Kaya, 2018). However, the data is collected through group discussions, and each discussion takes approximately thirty minutes.

### **3.2 Data Collection & Data Analysis**

Data collection for the “Scratch and Challenge Board” is conducted through focus group discussions. Focus group discussion is a unique type of qualitative research technique because the interview or the discussion would be conducted in a group discussion rather than through individual discussions (Neuman, 2014). The data collection from the focus groups consists of shared understanding, views and opinions of the participants. Additionally, the moderator needs to be capable of managing and ensuring that each individual in the group can take turns in sharing their understanding, views, and opinions so that the time limit set could be utilized fully and smoothly in order to save time for data analysis (Creswell, 2002).

The study has 10 focus groups, each with 3 to 4 students from the public university. This range of focus group size is to create an environment where participants can safely and comfortably share their thoughts, ideas, and opinions (Onwuegnuzie, Dickinson, Leech, & Zoran, 2009). The current focus group data would be included in the analysis to further refine and improve the new alternative assessment tool, “Scratch and Challenge Board”.

The data of this qualitative study appeared in the form of focus group discussion interviews and assignment documents. However, the entire data analysis process begins with data collection. An experienced moderator presides over the sharing sessions and takes notes on the information shared and exchanged. After all groups have carried out their discussions, the data from the notes taken during the observation of the 10 focus groups were analysed and categorized. The participation of multiple groups also assists researchers to achieve data saturation, which is a crucial component in the qualitative study (Doody, et al., 2013). The discussion data collected from students were transformed into tables. Students’ insights pertaining to the “Scratch & Challenge” Board are obtained via notes, categories and themes. A total of 6 open-ended questions were included in the focus group discussion. All the data were analysed to identify themes that emerged.

## **4. Findings and Discussion**

The findings of the study are based on focus group discussion. The purpose of the discussion is to explore students’ perspectives of “Scratch & Challenge Board” as an alternative assessment tool in order to assist students’ skills. During the analysis of the data, four main themes emerged. The themes are, alternative assessment encourages active participation in learning, integrating technologies in assessment tools, relevant with 21<sup>st</sup> century skills, and improvement in learning environment.

#### 4.1 Alternative Assessment Encourage Active in Learning

The alternative assessment is to ensure that the students provide an authentic answer. The authentic answer comes from the students' creativity and innovative thinking ability to prove their learning achievements. This type of alternative assessment is a form of assessment in which students are instructed to perform real-life tasks through demonstrating knowledge and other meaningful skills to complete the tasks. Students can freely apply a variety of references or resources, which assists the students to connect knowledge to their lives, either in real-life or in their professional life (Muller, 2005; Sridharan & Mustard, 2016). In this study, by using "Scratch and Challenge Board", students had opportunities to learn through projects and group work. They also enhanced presentations skills through the attractive learning activities. This can be seen from the following excerpts.

*"..... "Scratch and Challenge Board" is project-based learning ....." (G4)*  
*".....this "Scratch and Challenge Board" activity is categorized as an alternative assessment that uses basic project-based learning strategies....." (G2)*

Moreover, the findings of the focus group discussion regarding the "Scratch and Challenge Board" are that it is an alternative assessment because the "Scratch and Challenge Board" requires students to work in groups rather than individually, because the students in the group will be able to share ideas and gain opinions. As stated by G1, *"..... the elements in "Scratch and Challenge Board" enables student to share ideas and opinions; to ask questions from other group members as well as communication between group members..."*. However, other discussion Groups (such as G2) also have similar discussions. G2 mentions *"..... group activities for 5-7 students..."* followed by groups G6 and G9 who mentions *"..... work in group....."*.

The "Scratch and Challenge Board" introduced a new type of alternative assessment. Most of the time, this alternative assessment requires students to perform presentations, as is the opinion of G7: *".....using the presentation medium....."*, as well as from G3: *".....student presentation..... emphasizes on social skills where students will share ideas, knowledge, discuss and make decisions together....."*. Moreover, through student presentations, G10: *".....presentation creating two-way communication between teachers and students, where students can share ideas with teachers, and teachers can also make improvements through ideas or comments provided by students....."* at the same time, G5: *"..... through presentation teachers can identify students who are weak in lessons....."*.

In addition, besides project-based learning, group activity and presentation, the "Scratch and Challenge Board" also facilitates teachers to assess students' learning activities to make teaching methods more attractive and versatile, as mentioned by G8: *".....where no need to wait turns to comment, evaluate and ask questions, as well as this alternative assessment help teachers make assessments about student learning progress faster and in ease, indirectly, assist the teaching and learning process become more attractive and effective..."*.

However, from the current study, the "Scratch and Challenge Board" allows students to be actively involved in learning, and indirectly promotes students' collaboration skills through presentation, as well as through project-based activities, so that students would be granted the opportunity to solve problems in an authentic and interdisciplinary way. Thus, through this process, students are able to demonstrate their newly acquired knowledge and at the same time, newer knowledge could be acquiring through communication between group members (Sembeka, Nahadi, & Sriyati, 2017).

#### 4.2 Integrating Technologies in Assessment Tools

In teaching and learning, the integration of technology in assessment tools is highly encouraged. Therefore, in addition to the "Scratch and Challenge Board" itself, it could also be suitable for digitalization, such as being able to access it via smartphones, tablets, and laptops. Harnish, Bridges, Sattler, Signorella, & Munson (2018) discussed how technology has affected teaching and learning. Beginning in the 1970s with the use of television in the classroom, to video conferencing in the 1980s, to computers in the classroom in the 1990s, to the social media technologies of today, advances

in information technology are affecting how students learn and the activities in teaching. The usage of these technologies will benefit students in terms of saving time and cost. As learning can happen in various locations, the learning activities will be more interesting and the learning process can be recorded which enables students to easily share their ideas with others.

According to G3, *“.....the digital format can help teachers and student to save time, cost and energy in carrying out this teaching and learning alternative assessment...at the same time, it could be used at anywhere, anytime in various locations.....”*. These are supported by G8, *“.... The digital form of “Scratch and Challenge Board” saves time for students and teachers during the teaching and learning.....”*

Besides utilising digital formats for teaching and learning which involve virtual practices, one ICT tool mentioned by the focus groups is Augmented Reality (AR). G9 stated, *“.....the immerse of AR could help in the process of teaching and learning, at the same time, it helps to make the class become more interesting.....”*. However, according to G5 *“.....incorporated in AR, videos and audios can be added, therefore, teaching and learning become impressive, in addition, student could be repeatedly watching the video and listening the audio to gain understand a topic, this make the student learning experience more quality and complete to learn.....”*

The QR code that leads to the link or Google form could be an application of the “Scratch and Challenge Board” to teachers and students. As a platform that functions to guide students to make assessments, it also simplifies the teaching and learning environment. G9 and G10 discussed simplifying access links by scanning QR codes with smartphones to facilitate the teaching and learning process, *“link and google form build an interactive quiz...Collect user information...Manage attendance.....”* and were supported by G2: *“..... QR code to provides questions and answer space related to the topic of the lesson.....”*.

In addition, the focus group discussion also introduced other technologies such as Google Documents, Zoho Writer, and Padlet. Under the opinion of G4, Google Documents and Zoho writer *“.....enables collaboration in designing and editing documents that have been uploaded online to group members who have been granted access..... with combination of Padlet, students allow to post their opinions with sticky notes on digital walls and shared with others classmates.....”*

Another interesting point of the focus group is the addition of Social Networking Sites (SNS), such as Instagram and Minecraft. According to G1: *“..... the idea of Instagram came during the CoVID-19 season. Students have internet problems to open educational applications such as Edmodo and so on. In any case, they can open Instagram. Therefore, this platform should be encouraging as an online teaching and learning site, in addition, Instagram promoting a culture of sharing among students.....”*. On the other hand, another SNS mentioned by G6 is very similar to a board game, Jumanji. Through the board game, students can work in a team and win.

Furthermore, the “Scratch and Challenge Board” is not limited to a physical board or other board games, but it could also be hybrid with technology tools to support the teaching and learning process. Through the current study, most focus groups recommended that the “Scratch and Challenge Board” might be suitable as a digital format, where it could be assessed via smartphone, tablet, and laptops. In addition, the “Scratch and Challenge Board” also recommends the application of Augmented Reality (AR) so that video and audio can be blended and provides a more vivid learning experience. AR also opens up new possibilities for educators because it is unique and does have positive impacts on students’ learning performance as well as improve students’ motivation to learn in the classroom activities (Surendheran, Abd Wahab, Sagayam, Ambar, & Poada, 2020). Along with the current study, another interesting point emerged, which is the combination of the “Scratch and Challenge Board” with Instagram, a social media platform. As in line with Labib & Mostafa, (2015), education is in need of using different technologies, ICT, and social media application (SNS), because ICT and SNS have become necessary for communication, interaction, and learning in people’s daily lives.

### **4.3 Relevant with 21st century skills**

21st century skills are needed for students’ success in 21st century workplaces and career. Therefore, these skills need to prepare students to solve complex problems and make precise decisions. In the activities of “Scratch and Challenge Board”, students have an opportunity to work together on a task where each student takes responsibility for a specific aspect. These kinds of learning activities will

encourage collaboration, and for students to use and incorporate technology in their learning. Furthermore, such activities involve creative thinking skills.

The “Scratch and Challenge Board” is an alternative assessment that could foster students’ potential, as mentioned in G6: “..... *“Scratch and Challenge Board” involve Group discussion....*” which help students to collaborate with each other as also mentioned by G7: “..... *through “Scratch and Challenge: Board activity, it increases confidence in some students.....*”. This is related to Career and learning self-reliance.

On the other hand, familiarity with technology is one of the 21st century skills. Even though the “Scratch and Challenge Board” was introduced as a physical tool, in fact, the “Scratch and Challenge Board” is related to technology. In other words, “Scratch and Challenge Board” can also incorporate technology as well as social media.

G1: “.....*The use of Instagram only on mobile phones makes it easy for students to follow learning sessions anywhere. They do not need to open the laptop and need a larger area.....*”.

G5: “..... *Scratch and challenge” Board involve the use of technology in the classroom allows to stimulate active student involvement at the same time students can use it as reference material outside the classroom..... Students can understand the topics discussed more clearly. Help teachers build an active classroom atmosphere with student-teacher interaction. To produce quality learning and critical thinking students.....*”

Furthermore, other than what was mentioned by G9: “..... *creativity.....*” and G10: “.....*Help students to think creatively.....*”, the focus group discussion also mentioned various skills for the 21st century, including:

G2: “.....*pedagogy that is synonymous with 21st Century learning is learning based on problem solving, learning based on assigned projects and lastly learning based on inquiry. Skills in gathering information and teamwork are essential in completing assignments. In the process of learning based on inquiry refers to a learning process that involves students in finding solutions, making hypotheses, collecting data or information and the last to draw conclusions..... One of the activities that can assess these objectives of the teaching and learning is achieved or otherwise is through the implementation of ‘Scratch and Challenge Board’ activities.....*”

G3: “.....*Collaboration between groups and the involvement of all multiracial and religious students can be involved through this collaborative learning.....*”

G4: “..... *All students are able to participate and get involved. Help students get a better idea of what to do. Help teachers analyse student development and develop student qualities such as tolerance, critical thinking, and leadership.....*”

G8: “..... *Notes are written according to students' creativity based on what is taught in class.*”

Therefore, the “Scratch and Challenge Board” does not only make technology the centre of 21st century skills. In addition, besides technology, it can also enhance students’ 21st century skills. For example, by promoting collaboration among students who come from diverse background and different level of abilities, it can also promote students’ creativity, problem solving, critical thinking, and leadership. These skills are in line with Trilling & Fadel (2009), thus, the “Scratch and Challenge Board” can train and assist students’ to face real-life tasks and career life preparation.

#### **4.4 Improvements in Learning Environment**

The aim of this innovation of “Scratch and Challenge Board” is to ensure the quality of the alternative assessment. Several studies have found that active learning and a good learning environment can enhance students’ motivation and attitudes (Owens, Sadler, Barlow, et al., 2017). The findings of this study suggests that this “Scratch and Challenge Board” can improve the learning environment

through several aspects including integrating with social media, infuse technology and using colour to attract more attention. For example, the respondents stated;

G1: “.....include social media such as Instagram, because Instagram is a very popular social media platform and has over 1 Billion users.....”.

In addition to social media, there are others suggestions, such as the infusion of technology, based on other focus groups,

G6: “include board game (mine craft) .....”

G5 and G9 “.... Include the Augmented Reality (AR).....”

Additionally, some changes are suggested by other focus groups,

G2: “.....adding or provides questions and answer space related to the topic using QR codes..... as well as scoring space to facilitate teachers.....”

G8 and G4: “ .....change the name in each space, use more interesting names to give students a sense of excitement to participate.....Convert chat space to reply space, so that able to integrate question space and answer space to be more organized and effective...”

Other suggestions are,

G3: “ ..... change the physical board to hexagon shape... use of colours to creates a cheerful atmosphere and attracts students.. and easily carry by teacher .....”

G10: “.....edit templates to be more colourful or animated...diversify templates or patterns to engage students.....”

Therefore, in order to improve the quality of the learning environment by using “Scratch and Challenge Board” as a new alternative assessment tool, the enhancements suggested in this study will be considered and appropriately applied in the future.

## 5. Discussion

The participants of this study perceived the “Scratch and Challenge Board” as an alternative assessment tool that provides an avenue for them to be actively engaged in the classroom. It allows them to share as well as exchange authentic responses, ideas and suggestions. Lecturers would be able to view a variety of understanding held by students with respect to the concepts taught. The teaching, learning and assessment process in the classroom will be more engaging and fun (Ahmad Fahim, 2019). Apart from that, there were suggestions that the “Scratch and Challenge Board” could be incorporated with different social media platforms to provide a variety of platforms for students to present their responses. As mentioned by Labib and Mostafa (2015), the classroom of today needs to have the presence of these varied educational technology applications as these are the communication tools in the current real-world. This in turn, provides a more conducive and improved learning as well as assessment environment for students. The infusion of ICT and SNS with the “Scratch and Challenge Board” encourages the use of 21st century skills such as communication dan collaboration. Lecturers are able to formally or informally assess such skills via this platform. The discussions and exchange of ideas are important in the development of students’ communication and collaboration skills. Trilling and Fadel (2009) emphasised the need to provide opportunities for students to develop skills in preparation to face real-life and career tasks.

## 6. Conclusion

Improvement in assessment tools in teaching and learning is very important and very crucial. In this challenging situation at the moment with online learning, effective, interactive, and interesting assessment tools will help improve learning. Assessment tools can also be used to enhance the gaining of skills among students at the university. Through the use of the “Scratch and Challenge Board”, learning activities become more meaningful. This active learning situation is able to encourage group work among students. Assessment tools can also be integrated with technology. This is very important considering that the new learning environment requires the use of technology and social media tools. Social media material is very close to students. The use of assessment tools integrated with this technology was further found to encourage 21st century skills application among students. Hence, the assessment tools that are enhanced with the integration of social media can improve better learning as well as improve 21st century skills among students at the university.

There are some limitations inherent in this research. Since the researchers attempted to explore the university students on the “Scratch & Challenge Board” as an alternative assessment tool in enhancing students’ skills. Thus, researchers were not able to analyse the content based on aspects of other populations. Although the purpose of qualitative research could not be generalized, the research results might be prompted in the strategies and processes associated to this research. In addition, to adopt a multiple case study approach, time management needs to consider the time required to collect detailed data. On the other hand, this research was conducted on university students selected from one university in *Selangor*, Malaysia. Therefore, the findings are not generalizable.

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