THE ROLE OF POWTOON AS A FORMATIVE ASSESSMENT TOOL FOR HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

Emergence of Internet connected devices and globalization in education has enriched learning process in higher educational institutions. The new discoveries related to digital teaching tools enhanced the teaching and learning experience for the technology driven students. Due to the emergence of Education 4.0 which is an impact of Industrial Revolution 4.0, it is crucial for the educators and policy makers to identify and deploy an appropriate modern assessment tool which can be integrated into the teaching and learning process to monitor student’s progress. Past reviews have also highlighted that formative assessment successfully identifies strengths, weaknesses, and the efficacy of the teaching learning styles in regards to the content of a specific module. In response to these changes, the research aims to determine the role of Powtoon, a leading video and presentation platform that enables the undergraduate students to apply the acquired knowledge to other contexts and settings. A total of 50 students from a Private Higher Education Institution (PHEI) in Malaysia participated in this case study. The methodology selected to carry out the research was a quantitative technique and the responses were analyzed using the statistical analysis. The results of the study indicated that the formative assessment via Powtoon with regular feedbacks efficiently enhanced the learning experience of the undergraduate students. To add on, the students enjoyed the online visual presentations and it is proven that Powtoon plays a vital role as a formative assessment tool for the students by challenging and stimulating creativity with the use of modern technology.

KEYWORDS

Formative Assessment, Technology, Powtoon, Education 4.0

1. INTRODUCTION

Today, we live in an innovation and media-suffused condition whereby the students gather a plenitude of data by means of the Information Technology advancement. Thus, there has been a remarkable change in teaching and learning methods in Higher Education Institutions (HEIs). Subsequently, changes in study methodology using the new innovation and advancements influences the learning curves of the young 21st Century learners. The learning process is not bound to the classrooms alone, yet on a worldwide scale. Barnett Berry (2010), the organizer and CEO of the Center for Teaching Quality quoted that, “Twenty-first-century learning empower understudies to ace the substance while creating, incorporating, and assessing data from a wide assortment of subjects and assets by showing advanced education just as municipal duty” (para. 3).

It is a fact that the learning has changed in the 21st Century. The learning process is no longer confined to the classroom alone, but extends to a global classroom. Students presently utilize instructional advancements to integrate recently procured learning, collaborate with peers, solve problems using creative and critical thinking skills, and propose possible solutions. Therefore, communication becomes a vital process to ensure that learning takes place. Despite the fact that it
has been demonstrated that compelling two way interaction between the instructor and the students are important as highlighted by Ramachandiran (2010) and Lessard et al. (2019), it is a difficult goal to attain due to other external factors.

In addition, these emerging technologies provide unlimited opportunities for many new innovations to equip the students better to face the challenges in the 21st century. In the 21st century learning classrooms, the students are required to use educational and instructional technologies to synthesize the new acquired knowledge and make decisions to be successful in the current complex, diverse and global community (Rosenberg, 2001; Chu et al., 2017; Collins & Halverson, 2018; Ramachandiran & Mahmud, 2018). The accomplishment of such learning style lies in having the option to convey, share, comprehend and apply the obtained data to tackle complex issues. Adding on, the students are additionally required to adjust to the new emerging changes in the Education 4.0 era. This is due to the Industrial Revolution 4.0 wave that is so strong and the changes are inevitable, including within the education setting, making Education 4.0 the famous buzzword among educationists all around the world (Hussin, 2018).

In this new revolution, the digital learning tool is one of the emerging needs of information age whereby it replaces the traditional teaching method for the distant students and simultaneously encourages collaborative learning (Keenaghan, 2018; Myers, 2018). To add on, Rosenberg (2015) affirms that e-learning application is an open system that integrates the access to the information and purposeful communication into a dynamic and intellectual learning community. Therefore, e-learning tools are used widely in the 21st century learning classroom. However, the success of any digital learning style lies in being able to communicate, share, comprehend and apply the acquired information to solve the complex problems. Besides this, the students are also required to adapt to the changes in the Education 4.0 era and use the power of technology to create new knowledge.

Over the years, it is noticed that the knowledge is growing exponentially and it has impacted on the diversified career specialization. At the same time, the emerging technologies are also the root cause of this phenomenon and this is due to the rapid growth of the knowledge via the information highway. Therefore, the need arises for the students to keep abreast with this new change in the Education 4.0. Education 4.0 is a response to the needs of IR4.0 where human and technology are aligned to enable new possibilities as highlighted by Hussin (2018). The new vision of learning promotes students to learn the needed skills and knowledge as well as to identify the source to learn these skills and knowledge.

In response to these changes, suitable assessment must be identified for these technology driven learning community. According to Gikandi et al. (2011), assessment is an essential part of formal higher education and there are two types of assessment practice in HEIs which are the formative and summative assessments. The formative assessment is part of the instructional process and it occurs during learning activities conducted while summative assessments are given periodically to determine at a particular point in time what students know and do not know and it occurs at the end of the lesson (Malaysian Examination Syndicate, 2012). In response to these assessment requirements and changes in the new Education 4.0, the research aims to determine the role of Powtoon, a leading video and presentation platform that enables the young learners to apply the acquired knowledge as a formative assessment tool.

In accordance to the aim of the research study, two objectives were identified. The first objective is to determine the efficacy of the Powtoon tool to enable students to apply the acquired knowledge to other contexts and settings. The second identified objective is to discover the level of acceptance of Powtoon among the students and how it impacts their learning curve in an interactive learning classroom.

2. FORMATIVE ASSESSMENT

The main objective of the formative assessment is to screen student learning to provide progressing criticism that can be used by instructors to enhance their teaching and by students to improve their learning. All the more explicitly, feedbacks help undergraduate students to distinguish their
qualities and shortcomings and target areas that need enhancement. Besides that, it also enables the faculty to recognize where students are struggling and address problems immediately.

There are notable differences between the formative assessments and summative assessments. First, formative assessments do not require grading. Since it serves as a student progress monitoring assessment, it is more about the progression information rather than the end score. The information gathered assist in contribute into the shaping of appropriate instructional tool and future content development process. On the other hand, the summative assessment usually takes the form a final written test or final project. Unlike summative assessment, a formative assessment can take the form of many things. It could be a simple writing assignment, a mind map, an online quiz, a short discussion, and not forgetting any form of blended learning classroom activities. Researchers have also highlighted that the interesting fact of the assessment formative is what the teacher does with the information it generates (Keeley, 2015; Moss & Brookhart, 2019). Unless the result or feedback of the assessment is used to change something in the teaching or learning, there is nothing formative taking place in the learning process (Dixson & Worrell, 2016).

There are many different definitions of formative assessment currently in the field of education. Research has shown that student learning improves significantly when students are provided frequent feedback on their progress and that student learning improves when teachers use assessment to inform their instruction (Zainuddin & Halili, 2016; Dixson & Worrell, 2016). Along similar lines, Hopfenbeck (2018) research highlighted the Black and William’s (1998) fundamental strategies of formative assessment:

- Clarifying, sharing, and understanding learning intentions;
- Engineering effective discussions, tasks, and activities that elicit evidence of learning;
- Providing feedback that moves students forward;
- Activating students as learning resources for one another; and
- Activating students as owners of their own learning.

Besides this, a conceptual framework using formative assessment to stimulate reflection and ownership amongst academically weak first-year undergraduate medical students was proposed by Thomas & Aggarwal (2013). The conceptual framework is depicted in the following figure 1.

Figure 1. Conceptual Framework using Formative Assessment
(Source: Thomas & Aggarwal, 2013)

Figure 1 depicts the process that involves three key steps: early detection using formative assessment, identifying the type of support based on formative assessment scores and past performance, and establishing a plan for corrective action targeting the student’s weaknesses, developed through discussion and reflection with the student. An early detection of weak students was crucial for success. These steps allowed a small team, composed of academic and support staff,
to detect struggling students early and to monitor their progress over the first semester. Additionally, it helped students to develop skills such as reflection and meta-cognition to enhance their performance. It was also proven that the formative feedback forms an integral part of the student learning process and the delivery of that feedback is important. Students who presented themselves as academically weak were seen to improve their grades when given the opportunity to reflect on their deficits which helped them take ownership of their learning (Thomas & Aggarwal, 2013).

3. POWTOON AS A DIGITAL TOOL FOR TEACHING AND LEARNING

Powtoon is an instrument whose activity is similar to Power Point, Impress, or even Prezi. It uses slides to which content and pictures can be added to, however it likewise permits animations and the integration of various media from external sources. The outcome is an item that blends the look of a PowerPoint Presentation with a comic book. These online visual introductions are a quick and creative approach to convey information to diverse audiences within a short time span. The Figure 2 depict the screenshot of the attractive Powtoon interface.

According to Pais et al. (2017), Powtoon has several advantages. Some of the general advantages offered by the digital tool are as follows:

- It allow individuals to display or present any topic of interest and promote sharing.
- It immediately attract the audiences if the presentation is well designed.
- Students read and synthesize information to be able to present it.
- Powtoon achieve greater comprehension of the information being shown and make it easier to remember.
- It integrates different types of formats and media, increasing the integration capabilities of the visual, auditory and motion resources.

Similarly, Buchori and Cintang (2018) affirms that creative thoughts and ideas will emerge and develop if the process of learning technical subjects in the classroom uses appropriate learning approach such as Powtoon. Figure 2 depicts the attractive Graphical User Interface (GUI) of Powtoon.

As shown in Figure 2, Powtoon is an online service for creating exposures that has excellent animated features including customized animation, animated cartoons, and more interesting transition effects as well as easy timeline setting. Research has proven that Powtoon boosts students’ enthusiasm towards learning. Powtoon media can display videos equipped with animations that facilitate students in understanding the content delivery process, so that their creative imaginations arise in capturing the lessons (Buchori & Cintang, 2018).
4. METHOD

To address the aims and objectives of this Formative Assessment related research, Powtoon was implemented to determine the efficacy and role of the Powtoon tool as well as how the digital tool impacts the learning curve in the private HEI.

- **Population and sample**
  The respondents for this research consist of 50 undergraduate students from a private Higher Education Institution (HEI). They are from various specialization related to the field of Computing and Technology. This assessment was integrated into a Computing module offered to Year 2 students from the Computing and Technology faculty. The characteristics of the selected respondents are:
  - Gender: Male (71%); Female (29%)
  - Age group: between 17-22 years
  - Nationality: Malaysian (22%); International (78%)

- **Research Process**
  The research was divided into 3 phases. The first phase was the formative assessment to determine the efficacy of the Powtoon as a formative assessment tool. The students produced a short animated video related to the lesson for a duration of 5 minutes. Figure 3 depicts selected Powtoon video produced by the undergraduate students from the HEI. These are produced in team work and their progress was monitored by the instructor during the lab sessions to ensure the originality of the produced work.

  ![Sample Powtoon Presentations](image)

  **Figure 3. Sample Powtoon Presentations**

  As depicted in Figure 3, the students successfully completed the given task with minimal guidance from the instructor. It was then presented to the peer and feedbacks were given by both instructor and peers. To further determine the role of Powtoon as an efficient formative assessment tool, the scores were compared with an online class quiz conducted on the third week of the semester. Both scores from the Formative Assessment tools were analyzed for a comparative analysis.

  The second phase identify the level of acceptance and concludes the role of Powtoon to enhance the learning process in the HEI via survey. The survey was applied after carrying out the formative assessment using Powtoon. The survey included “How did you like working with Powtoon?” and Likert scale was used to measure every item in order to determine the student’s degree of agreement:

  5 - Fully agree with the statement.
  4 - Partially agree with the statement.
3 - Neither agree nor disagree with the statement.
2 - Partially disagree with the statement.
1 - Fully disagree with the statement.

The data analysis is the final phase of this research. In this phase, all the collected data from the formative assessment and survey is analyzed using the Statistical Analysis tool to derive the outcome of this research.

5. ANALYSIS AND RESULTS

The student’s active participation in completing the Formative Assessment via Powtoon indicated there is a positive trend of interaction among the 50 respondents. A total of 14 groups comprising of 50 students participated in this assessment. It was found that 8 of 14 groups (57%) obtained outstanding grade for the Formative Assessment. The class average is 86.48%. On the other hand, the average score for the quiz was notably low (70.28%) compared to Powtoon as depicted in Figure 4.

![Figure 4. Formative Assessment Comparative Analysis](image)

The majority of the students enjoyed the use of digital tool as a formative assessment as it promotes creative learning and they learn to assimilate the given information and reproduce the content taught during lectures. Though the formative assessment does not require grading, the grades together with feedback acts as a motivating factor for the undergraduate students. On another note, the findings from the survey suggests that the students enjoy the Powtoon assessment. A total of 44 students (88%) agreed that Powtoon is an effective assessment tool for the 21st Century learner. The average rating is 4.32 that indicates that the students partially agree with the statement that they like working with Powtoon. From the instructor’s perspective, the tool played an important role to enhance classroom learning and successfully captured the students’ performance via formative assessment.

6. DISCUSSION AND CONCLUSION

Students have a positive opinion about the use of PowToon in the development of learning activities related to undergraduate teacher education in the computing course, especially in the unit about the software myth topic. In general terms, a high percentage of students consider PowToon to be a motivating tool used to create interactive materials through animation and videos as highlighted by Buchori and Cintang (2018).

In regards to the usefulness of PowToon in supporting the formative assessment process, the students are convinced that the digital teaching and learning tool is suitable for them because they
apply their knowledge and skills in completing the given tasks effectively with minimal supervision. The feedbacks during the presentation sessions were helpful as they feel motivated and as a result, it enhance their learning curve. The findings supports the findings by Hussin (2018) that the advancement of the technology enables the learning of certain domains effectively, thus making more room for acquiring interpersonal and intrapersonal skills.

Another success factor worth referencing is the likelihood that the Powtoon digital tool offers to express or transmit data through the production of multimedia resources.

The research has proven that Powtoon plays a crucial role to enhance learning curve and effectively assess students skills. However, the policy makers in the private Higher Education Institution (HEI) must ensure the infrastructure supports the activity as most of the assessments are technology driven. In this study, Powtoon successfully assessed students’ knowledge and skills. The research findings also explored the new advancement in assessment in an optimum and conducive learning environment such as Collaborative Learning classroom for the undergraduate students. Though there are many researches being conducted in the area of teaching and learning space, there is a demand to design an assessment that caters to 21st century students who are very technology driven. Other dimensions in assessment should be highlighted to improvise the effectiveness of various Formative Assessment tools in the new Education 4.0 revolution. Besides that, the findings may also vary from one module to another as different modules have different learning outcomes. Therefore, the role of an informative instructor is crucial to identify the most efficient Formative Assessment method and this can only be attained through experimental learning, a process of learning through experience and reflection.

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