Game-based Assessment in Academic Writing Course for Pre-Service Teachers

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Abstract

Integration of technology in language learning has become a recommendable initiative for English as Second Language (ESL) instructors. Previous studies have noted remarkable improvement of students' learning through the integration of games in classroom teaching. However, little attention has been given to the integration of games element in language classroom that particularly aims to hone students' writing skills. In response to current language learning situation related to writing skills, this current study sought for a new method of assessment in ESL context. An online game application, Kahoot, was used as the primary tool for students' assessment in an academic writing course participated by 32 ESL students in a public university in Malaysia. Qualitative research design was conducted in this study and collection of data was conducted through focus group discussion with ESL learners and a semi-structured interview with ESL instructors. The Responses from students and instructors were recorded and transcribed in verbatim. Thematic analysis of the data revealed that ESL learners found that game-based assessment is highly engaging despite of some learners' anxiety towards the use of technology. ESL instructors also highlighted the importance of learning objectives in assessing students' performance regardless of the tools used.

Keywords: Game-based assessment, gamification, academic writing skills, language learning, English as a Second Language (ESL)

Introduction

Academic writing skills are one of the most crucial skills to be acquired by students in higher institutions. Unsatisfying level of academic writing skills resulted in students' inability to complete written assignments particularly in dissertation writing (Swales & Feak. 2004). According to Yunus, writing skills among Malaysian students are highly alarming and their ability to produce a good piece of writing is still unsatisfactory (2012). She asserted that students' ability to write academically in educational context is crucial for the students particularly in completing their studies and enhancing their professional development (Yunus et al. 2013). Available materials for academic writing are still limited and the need for appropriate instructional tools is highly in demand. Starfield asserted that materials for academic writing are mostly left underutilised and henceforth, resulted in insufficiency of learning materials (2015). This shows that materials provided for academic writing skills development are not fully utilised by instructional tools developers and therefore, resulted in students' incompetency for writing skills.

Despite of numerous tools that have been developed by course instructors to enhance students' writing skills, writing skills enhancement in a game-based learning environment are still underutilised (Milad, 2017). Learning in an gamified context allows deep processing of information, multi-modal learning elements, problem-solving experiences, and learning through personal experimentation and exploration. In the context of academic writing, there are still a

considerable number of gaps to be fulfilled in providing students with online resources (Chen & Zhang, 2017). Students' engagement in online learning courses remained low even though the final completion of courses is defined through their performance for every completed assignment. This situation comes along with a shifted perspective on success in a gamified learning context viz. through a game-based asssessment environment particularly in an ESL context (C. While previous studies only concerned for online learning experience, the current study aims to discover students' perception on game-based assessment in an ESL context.

Improving assessment quality becomes a major concern among ESL instructors to give the most effective learning opportunities for ESL students. Convenience of assessment through games could be integrated to improve students' performance in writing courses particularly in interaction opportunities and practicality in communicatio. In conventional assessment context, students are exposed with limited interactive features and eventually give them less opportunity to engage with their peers making them incompetent writers (Yunus et al., 2013). Limited guidance and insufficiency of attractive features to be integrated in conventional assessment are the major factors to the unsatisfying performance of students' and decline in students' motivation of learning. Previous studies have noted that students' participation in Academic Writing courses is very low and their interaction in classroom is also very limited (Cui, 2019). The aforementioned figures stated that students' anxiety for classroom assessment is still high. This situation will eventually hinder their ability to performance well in during assessment. Gamified context of learning has been widely discussed to have a massive potential of enhancing ESL learners' motivation to actively engage in learning process and eventually improve their academic writing skills (Li, 2017). In responses to abovementioned situation, this study proposes to investigate ESL learners' perception on the implementation of game-based assessment (GBA) in academic writing course. The current study is in line with the future generation expectation and demands in learning especially to be equipped with more sophisticated tools and smartphone application to assist the learning of academic writing skills.

Background of the Study

Studies related to the development of game-based assessment in educational context have started to grow wider. Researchers in the context of education are now in the brink of investigating and employing various strategies to be integrated in learning practise. Gamification, or elements of games to be integrated in a non-game context is found to be highly motivating. Elements of games which are fun and challenging motivate learners to keep track with their engagement in the "gamified" context. Previous studies have been conducted underpinned with various theories. One of the most highlighted theories that underpins researches related to gamification is social constructivism theories followed by constructionism and flow theory. However, there are also limited number of studies that were underpinned with other theories related to gamification such as activity, experiential & generative learning, cognitive theory, narrative centered learning, scientific discovery as duel search model, situated learning theory and uses & gratification theory.

The constructivism approach is very important in the learning process because students are encouraged to develop their own concepts by relating things learned with their existing knowledge. In this process, students can improve their understanding of something. Previous studies showed that students who were taught using the constructivism approach had gained significantly and significantly compared to the group of students taught using the traditional approach (Brandon & All 2010). It also proves that the constructivism approach can help students to gain a higher and significant understanding and achievement. In constructivism theory, the aspects explain in detailed how constructivism helps students build their own meaning of knowledge based on their existing knowledge. That knowledge is applied to the learning in a game-based context.

Motivation is an important component of learning success. Integration of games elements in a non-game context plays the roles as a learning catalyst to foster interaction and motivation in learning. Intrinsic motivation is more dominant in supporting learning success than extrinsic motivation. In the perspective of cognitive psychology, the flow theory is expected to improve students' motivation. Flow is a human mental state that feels "the most enjoyable time", "That really was fun and wish they would happen again" (Lu, Zhou & Wang, 2009). This situation occurs when the attention is invested for a realistic purpose, according to the goal. Full attention is devoted to tackling the challenge and therefore foster drive to further learning. The flow theory mechanism is based on a model of consciousness by Getzels and Csikszenmihalyi through phenomenological approach and information theory (1975). "Flow" in any context will result ordered consciousness and awareness to achieve the goal.

Therefore, "flow" can also be defined as the states of feeling a seamless sequence of responses with machine interactivity, perceiving intrinsic enjoyment, loss of self-consciousness, and sensing self-reinforcing during network navigation (Lu,

Zhou & Wang, 2009). The goal of establishing the flow theory in educational context is to help students acquire knowledge or skills; thus motivating students to learn is important in instructional design practice. Students should be happy to learn, and gain attention and learning orientation before they start learning. In the context of distance education, it is crucial for the researcher to embed some important aspects in the flow theory to motivate the learners to continue study and enjoy learning is one of the critical factors to success in distance education.

Methodology

A qualitative study was conducted to 33 ESL learners of a public university in Malaysia. In this study, a focus group discussion with ESL learners was conducted to obtain their feedback on the implementation of game-based assessment in an ESL context. A game-based assessment was carried out to the participants for four months (one academic semester). The participants enrolled for an academic writing course that consists of topics related to research methodology. After the semester ended, five students were selected to give their feedbacks on their experience of learning in a gamified context. Collection of qualitative data was conducted through a focus group discussion with the five participants who expressed their willingness to be a part of the study (Merriam, 1998). In gaining in-depth insights from ESL instructors, two TESL lecturers and two English teachers were interviewed guided with a set of loosely-structured questions. After the focus group discussion and interview sessions ended, recorded conversation was transcribed in verbatim and analysed thematically.

Findings & Discussion

This section presents the insights from ESL learners to answer the research questions of the study on learners' perception on the game-based assessment in an ESL context and well as the instructors' perception on the implementation of game-based learning in an ESL context.

ESL Learnerss Perception on Game-Based Learning in ESL Context

The effectiveness of a game-based assessment is highly related to stdents' acceptance and attitudes towards the teaching approach (Hwang et al, 2016). Therefore, It is worth to discover learners' perception on the strengths and weakness of the game-based assessment for further improvement as they underwent a first-hand experience with the assessment. Besides that, learners' one-to-one interaction and first-hand experience in the course provide valuable findings for the researchers whether game-based assessment is suitable to be implemented in an ESL context. In order to gain in-depth insights from the ESL learners, their feedbacks on the choice of materials for game-based assessment and classroom participation in a gamified context were presented in this study.

In terms of the use of materials in for game-based assessment in an academic writing course, the researcher received mixed feedbacks from the ESL learners. R3 mentioned that, *"I feel that some application are **too common**. Maybe I have seen a lot of game-based activities for assessment, so I felt that the activities are common for the course"*. On the other hand, R4 added that, *"I like the activities. It is quite **interesting** with the use of Kahoot and all. I saw the most of my friends enjoyed the lesson when we integrated multimedia in learning certain topics."* After being asked to clarify his opinion on "too common", the learner (R3) mentioned that the flow of the activities was conventional whereby the implementation of Kahoot after each session is predictable. He added, R3: *"I felt like I have known what's next, the flow of the activities were all **predictive**. I **already know** what is going to happen next. You know… **common things** for an assessment in classroom… maybe I have seen a lot of games, so I think this one was **just like other games** (similar)."* The researchers also discovered his opinion whether the materials and activities used for assessment were interesting, and R3 added: *"Yes… yes… **for the students**, of course **it's interesting...** Because they have not been in many game-based learning… I don't know, it is just my thoughts…"* His feedback on the materials used is in line with the researchers; observation throughout the course.

The researchers also noted that some ESL learners showed their interest and excitement when certain games activities were integrated. However, it was also noted that a number of learners lost their interest and attention towards the end of the course. According to R1, the choice of materials can be further improved. Even though the use of materials such as Kahoot is interesting enough, she added that R1: *"The **choice** of Kahoot is **fine**. I like the Kahoot too. But I believe there are other applications or games which are more related and more appropriate. Not that I say the Kahoot is not good enough, but I believe there's still plenty of **application (online) that are more relatable**… Again, there's nothing wrong with the choice of Kahoot. But like I said just now, it can be varied – you know…"* In terms of application suitability, it

is noted from the observation that the students were excited with the use of Kahoot. However, there were times whereby the students looked less intrigued with the content particularly on intense topics such as economy and politics and the learners did not show much interest with the lesson.

Since the use of games was integrated in most of the course, it is worth to note the ESL learners' perception on the comparison of game-based assessment materials and other conventional assessment tools. R2 added, *"It's **good** to use **Kahoot** in the lesson... But like just know, we were having a **hard time** to **set up**. Plus, we were waiting for quite some times, and I was worried that some of us tend to lose their interest for learning."* It is worth to note from the observation that, the time spent on preparing the LCD took quite long. The researchers also discovered that the learners showed less interest in learning whenever the ESL learners took up most of the time in preparing. *"Maybe we should have more **back-up plans** in the future… I mean, not to have materials like this (ICT integrated) but… like contingency plans... you know… If **let say we could not use** the **LCD projector**, at least we have something else…"* Even though the ESL learners were able to make the right decision when problems occurred, the researchers noted that language learning became less effective when problems related to technicalities occured. For example, when LCD projector could not be set up, the ESL learners only used the laptop and showed the video to the students. Even though they were able to watch the video played, it was a bit problematic for the students (who sat at the back) to watch the video. R1 added, *"I did **not like** it when I had to **show** the **video through** my **laptop** when LCD projector was not working. But I **don't have any choice**, and if the LCD was not working, the instructors could not teach and students would not be able to learn,"* From the R1 feedback, it is clear that problems will occur when ICT is integrated in a language classroom and eventually resulted a feeling of dissatisfaction for the teacher and students. In the session whereby LCD projector was not working and the instructor had to use her laptop to show the video, the researchers noted that students felt less interested and their responsive rate was low. In comparison to a lesson whereby LCD projector was working, the students participated actively and responded quickly when the ESL learners posed any question.

In general, all ESL learners agreed that the materials used were interesting for the students. Even though R3 believed that the materials were too common in his feedback, R3: *"maybe I have seen a lot of* game-based assessment, *so I think this one was **just like other** game-based assessment (common).",* However, other ESL learners expressed their comments on the choice of materials used during game-based assessment to be interesting. R2 added that, *"It's **good** to use **Kahoot** in the lesson,"* and her statement was supported by R1 and R4 saying that, *"The **choice** of kahoot is **fine**. I like the application too"* and *"Yes, **it's fine**. I don't see any wrong with them (Kahoot). I mean the materials (**Kahoot**) is something that **they are familiar** with – it's not too foreign, I believe,"*

Overall, the ESL learners mentioned that larger selection of materials should be provided to the students to make sure that they were able to participate actively throughout the course. In addition, the choice of contents must suit the students' interest and it should be at par with students' expectation (Hamari et al., 2016). F1 agreed that the use of games were helpful to capture students' attention, particularly contents which are fresh and interesting. This was due to students' inclination to lose focus during the language lesson. Therefore, uninteresting materials are prone to be unentertaining and resulted students' loss of focus throughout the lesson (Huizenga et al., 2009; Cui, 2019). Although the participants agreed that variety of games application have been used, they also mentioned that localised materials should also be included to make sure that the students are able to relate the content with real life. The use of western content could be useful for the students to learn about pronunciation in the future (Stritikus, 2003; Chen & Zhang, 2017). In fact, activities with the integration of local context were found to be highly accepted by the students.

Instructors' Perception of Game-Based Assessment in ESL Context
The current study aims to investigate the implementation of game-based assessment in ESL Context among ESL learner. A semi-structured interview session with the instructors of academic writing course was conducted. The instructors provided detailed feedback on the use of games as an assessment tool to evaluate students' progress in ESL Context. It is crucial to get the instructors' responses as they work as a guideline for the researchers to make necessary amendment of the assessment for the course. Data obtained from the interview session resulted several emerging themes regarding the preparation, implementation and evaluation of the course. The instructors in this study commented on the learning objectives, choice of materials, content suitability and evaluation of the assessment.

Four instructors in ESL participated in this study namely; two TESL lecturers and two secondary school English teachers. The first two instructors are TESL lecturers teaching in a public university in Malaysia All instructors possess a minimal requirement of five years teaching experience in ESL. Summary of instructors' background is presented in the following

table:

Table 1
Summary of Instructors' Background

Table	Instructor 1	Instructor 2	Instructor 3	Instructor 4
Field of expertise	ESL	ESL	ESL	ESL
Academic Qualification	Bachelor's Degree, Master's Degree,	Bachelor's Degree, Master's Degree,	Bachelor's Degree,	Bachelor's Degree
Current teaching institution	Public higher learning institution	Private higher learning institution	Public secondary school	Public secondary school
Location	Suburban	Suburban	Suburban	Rural

N=4

The findings of instructors' perception on game-based assessment are presented in this section. This includes their feedbacks on learning objectives, choice of materials, content suitability and evaluation of assessment in a gamified ESL context.

One of the most important aspects in assessing learning is determining the learning outcome (Baecher, Farnsworth & Ediger 2014). All instructors expressed their concerned on the formulation of learning objectives of the activities as it is the crucial part of an instructional material. Summary of instructors' responses on learning objectives is presented in the following table.

Table 2
Summary of Instructors' Responses

Expert	Summary of instructors' responses on learning objectives
LR1	Learning objectives must be clear and measureable
	Avoid using general verbs; understand, know etc.
	Objectives must specify learners' needs
LR2	Use measurable verb to identify learners' improvement
	It should be related to the assessment for each activity
TR1	Try to include as much Higher Order Thinking Skills (HOTS) as possible.
	Add more objectives for activities with one or two objectives.
TR2	Use clear objectives so that the facilitators are aware of the learning outcomes.
	Some learning outcomes are irrelevant to curriculum specification.

Previous study have discovered that the implementation of game-based assessment aims to minimise learners' anxiety for in assessment (Hamari et al., 2016). They have also been acknowledged of the participants' level of language proficiency and competency. Instructors were also given authority to comments any parts of the game-based assessment. However, only four main aspects were analysed by the researchers to be the most crucial aspects in a game-based assessment.

Lecturer 1 (LR1) indicated the most important part in a game-based assessment is the learning objective as it is the central part of the assessment. From the activities developed in the academic writing, LR1 expressed that learning objectives must be clear and measureable. She also stated, *"Try to **omit** objectives which are too general (**abstract**) as it would be very **difficult** to determine their performance (achievement). If you use the verb "understand' how would you measure their (the students) understanding?"* In addition, she also suggested using verb that imply concrete improvement of the students, which are clearer and measureable. She added, *"**Use verbs like "complete"** for example, **can be measured** – if the students get 4 out of 5 points from the games, then the objective is achieved."* LR1 also suggested using verbs that imply learners' needs in learning. She expressed that, *"**Cross-check with the course syllabus** and make sure they are learning **what they are supposed to learn**. At least they could improve their performance (in*

examination andnot simply abot the fun in games."

Lecturer 2 (LR2) noted that learning objectives must be in line with the game-bsed assessment made for the course. She added, LR 2: *"Make sure you choose an **exercise that could reflect back to your objectives** – this is where you will decide whether your objective is achieve or not. Again, make sure you can measure it (their performance)".* LR2's feedback is in-line with LR1's feedback in terms of the measurability of students' performance through learning objectives. She also stressed that assessment and objectives are two inseparable elements. She added, LR 2: *"Whether or not your **objectives** are achieved, it **depends** on your **assessment**. If your assessment **could measure students' understanding** – then you objectives can be achieved,"* Teacher 1 (TR1) is an English teacher in Selangor Malaysia. Her feedbacks were valuable to the researcher as it gives an insight to the researcher on the suitability of the learning outcomes for school students. In addition, the researchers also sought for her opinion on objectives, which are parallel to the school syllabus. TR1 stressed her stand on the use of High Order Thinking Skills (HOTS) in learning outcomes. She added that, TR 1: *"I saw same objectives for most of the activities. It would be good if you could **integrate higher order thinking skills (HOTS)** in the learning objectives. Avoid using simple objectives like "list down' "define" and such things… You know, the "easy" one. Make them a bit challenging (by using HOTS),"* The researcher also noted that TR1 commented on the number of objectives for each activities and she suggested to add more objectives for activities that with one objectives.

Teacher 2 (TR) is an English teacher with the least experience of teaching. However, her experience of five years teaching students with low proficiency in English is useful for the researcher to develop a game-based assessment which could cater the needs of low proficiency students. She commented on the use of unclear objectives and suggested for another terms which are more suitable. She added, TR2: *"I saw an objective using the verb "know". It could be used for a general objective but for specific objectives, a **clear verb should be use**. Maybe you can **replace the word** with more concrete verb. Like – **"demonstrate" or "show",** you know… something that can be seen (observed). In that way, you can clearly evaluate your teaching – whether it is effective or not,"* For some games, TR2 commented that they were not in line with curriculum specification and suggested different types of games to be used which are relevant to the students. TR2 comments of the clarity of objectives are parallel to LR1 suggestion for verb replacement.

Evaluation is "the collection of, analysis and interpretation of information about any aspect of a programme of education or training as part of a recognised process of judging its effectiveness, its efficiency and any other outcomes it may have" (Rossi, Lipsey, & Freeman, 2003). In tany classroom setting, evaluation of each activity was conducted after each session ended and students were assessed through their performance in completing the task. In evaluating the activities, feedbacks from the instructors were gathered and further elaborated to analyse the appropriateness of game-based assessment and its parallelism with the learning objectives. Summary of instructors' responses on evaluation of the game-based assessment is presented in the following table.

Table 3
Summary of Instructors' Responses on Evaluation of the Activities

Expert	Responses on content suitability
LR1	Include various types of games Evaluation should not only based on students' engagement and fun learning experience
LR2	Prepare pre and post assessment Take note of students' progress throughout the lesson in gamified context
TR1	Kahoot is fine Include slightly challenging games for the students

TR2	Some games prepared are too easy for the students
	Get them to play games as a group work

LR1 suggested to include various types of games that serve as the formative assessment for the students. She also added that evaluation should not only based on students' fun and engaging learning experience but include their overall performance in the course. She expressed that, LR 1: *"Choose a game that is not too easy for them, make sure it is suitable for the students' proficiency. Most importantly, it **is suitable for a session** (30-40 minutes). If it is too hard, the students are not enjoying the game – I mean, **simple game** should be fine, but of course – not too easy,"* In addition, she also suggested assessment to assess students' attitude improvement instead of relying on students' achievement in worksheets. She mentioned that, *LR 1: "Facilitators play the most important role in evaluating the lesson. Whether or not the evaluation is effective – it depends on the assessment by the facilitator. Another thing, you should also **note** their **improvement** in **attitudes** and **motivation** – how much they have improved,"* Besides that, the researcher was also advised to conduct a pre and post evaluation for the students to analyse their performance in language learning. LR2 said, LR 2: *"It would be better if you could **note** their **achievement before, during and after the implementation of game-based assessment**. But most importantly, you need to know their current proficiency (pre)."* After being asked by the researcher on the type of assessment for the students, TR1 mentioned that*, TR 1: "Kahoot are fine, but **make sure it is suitable** with the students as well as the learning objectives. You can give them any games, but most importantly it should be **in line with the learning objectives** – because at the end of the day, you want to know whether the students are progressing or not,"* TR2 statement supported LR1 suggestion on the suitability of the games used as an assessment tool Both of them also expressed the importance of choice of games that are in line with the learning objectives. TR1 also suggested including slightly challenging games for the students. She added, TR 1: *"If you provide **easy games** for them students, of course they **will score well**, but **it doesn't show how much they have learnt**. Sometimes, the students only show (pretend) as if they don't know so that the teacher gives them easier questions. But should never be done. Always prepare **games that are slightly challenging** – words that they are not familiar with for example. But of course, not too easy."* TR 2 commented that some games prepared are too easy for the students and questions are intuitive. She also added, TR 2: *"I saw **some exercise that is too easy** for them – try to **find something** that is **a bit difficult**. Get them to participate in group work as well so that you can evaluate their performance in group,"*

Generally, the instructors perceived game-based assessment as a comprehensive tool for language assessment. Despite of its feasibility to conduct in a setting with inadequate technology equipements, the instructors agreed that the use of games as an assessment tool is a very much appreciated by the students as they are able to engage freely in a classroom setting.

Conclusion

Game-based learning has becoming a new way to improve learners' motivation particularly in language learning. The elements of games that are integrated have resulted a highly engaged learning process over time. In this study, game-based activities were integrated in the teaching of learning of second language focusing of the enhancement of writing skills particularly in academic writing. The implementation of of game-based activity in this study have given the opportunity to researchers to explore the issues related to academic writing skills among students. Apart from writing skills acquired by the students, researchers have also dicussed that the instructors' perception on the impelmentation of game-based assessment in academic writing course. Results presented in this study have contributed to the aspect of students' assessment in wriitng skills. Since choices of writing skills assessments are stills scarce, researchers of the current study intend to provide a fresh, state-of-the art alternatives for writing skills assessment. Therefore, the researchers examined how the use of games is a viable method to increase student motivation and interest in academic writing course. In learning process, students are expected to be participative and motivated throughout the lesson to ensure effective information transfer and knowledge sharing. Perception of the educators is also essential as it enables the researchers to reflect for themselves in terms of the effectiveness of their teaching practise. Results of their perception enable the researchers to develop more systematic and interesting game-based assessment in analysing the learners improvement in writing classroom. Based on the research done, it has been noted that the game-based assessment is effectivein enhancing student achievement and interest in the academic writing course.

Pedagogical Implications

Findings from this study provided useful insights ofn the on usefulness, ease of use, ease of learning and satisfaction of game-based learning module based on the feedback obtained by the students. In-depth analysis of the interview data revealed a more detailed suggestions and perceptions from the students in regards to the implementation of game-based assessment for in academic writing course. It is useful for other teacher educators to improve the game-based assessment for pre-service teachers. It is also shed a new light on the perspective of second language (L2) writing especially in the context of tertiary education.

Acknowledgement

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