Examining the Impact of Gamification Assessment on Motivation and Engagement in Learning Social Science Courses in Higher Education

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Abstract
Gamification has gained popularity as an innovative method of teaching and learning in education, particularly in student assessment. By integrating game elements like points, leaderboards, and badges into non-game contexts, gamification aims to enhance student motivation and foster greater engagement in classroom activities. A study was conducted to determine the extent of the effect of gamification-based assessment practices on student motivation and their involvement in learning sessions. Using a quantitative research approach, the study administered a questionnaire to 44 social science students enrolled in the CDA20803 Religion and Society course. Data analysis involved descriptive and inferential statistics using the Statistical Package for the Social Sciences (SPSS), including mean values and Spearman's rho correlation. The findings reveal a significant positive relationship between gamification assessment implementation and student motivation and engagement. These results underscore the beneficial effects of gamification-based teaching practices on student learning experiences. This study contributes valuable insights to the evolving literature on gamification in education, highlighting its potential as a progressive educational approach.
Keywords: Gamification, Assessment, Higher Education, Motivation, Student Engagement.

Introduction
Teaching and learning in the 21st century must use an approach that aligns with current developments and needs to apply new alternatives that can significantly benefit educators and students. Teaching and learning practices face changes along with the modernization of the world. Innovation in teaching has experienced significant development and has gained an increasingly important place in the world of education today. Moreover, with the emergence of increasingly sophisticated information technology and multimedia, various exciting and effective methods and approaches have been created occasionally. In the variety of alternatives and new approaches used in teaching, gamification is part of educators' choices

in improving the quality of learning today. The gamification approach applies elements of innovation in teaching, which is believed to improve the quality of education, especially in terms of student achievement.

Gamification is one learning approach that uses game elements in an educational context to increase student motivation, engagement and learning outcomes. The main goal is to make the learning experience more enjoyable, interactive and practical by adopting concepts and dynamics found in games. Today's learning adapts new media literacy to produce students with high social skills who can communicate effectively and think critically and innovatively (Adipat et al, 2021). Along with the changes in the modernity of pedagogy that wants to produce holistic students, there are still some things that could be improved in the progress of the teaching and learning system. Among them is an assessment method that can measure the effectiveness of learning, especially in the aspect of value measurement in teaching and learning. It is difficult to visualize when students cannot make decisions and take action on an issue in society. The dynamics of games have influenced the popularity of gamification to enrich student's experience in their learning journey, especially when assessment is done. This paper explores the effectiveness of gamification techniques in increasing student motivation and engagement in social science course subjects at the University of Sultan Zainal Abidin, Malaysia. Through quantitative research, this study aims to answer the main research questions of the study; mengukur elemen gamifikasi yang meliputi aspek perceived use, usage, penglibatan interaktif, sikap, penglibatan pelajar dan motivasi pelajar dalam pembelajaran, mengkaji perbezaan kesan gamifikasi terhadap motivasi dan penglibatan pelajar mengikut jantina mahasiswa serta ingin menganalisis hubungan elemen tersebut yang memberi kesan kepada motivasi dan penglibatan pelajar dalam kelas. Therefore, this study is considered appropriate for determining the effectiveness of gamification assessment that applies game elements in measuring the understanding of knowledge and appreciation of values in the course 'CDA20803 Religion and Society'. This study also aims to determine the student's perception of the application of gamified assessment and the difference between genders on the effect of this gamified assessment on student motivation and engagement in class.

Materials and Methods

Literature review
According to Maimun Aqsha Lubis and Siti Hajar Taib (2022), the use of the latest technology is one of the sciences that is based on reason and can change the atmosphere of teaching and learning to a more modern one to attract the attention of students compared to traditional methods. This matter is also supported by Nor Saadah Azahari and Nik Mohd Rahimi, 2022 that the world of education today dire needs innovative methods, especially in learning. This requirement goes hand in hand with the drastic changes in teaching and learning from the point of view of educators, which demands that educators become professionals. This is because blended learning is one of the practical approaches educators can use to ensure the learning delivery process becomes exciting and effective, especially in online courses. Combining existing courses with computer "courseware" is an integration and innovation in the context of teaching and learning (Che et al., 2020).

Teaching and learning practices face changes along with the modernization of the world. Online learning has also experienced significant development and has gained an

increasingly important place in today's world of education. Moreover, with the emergence of increasingly sophisticated information and multimedia technology, online learning platforms have gained more and more attention. Gamification-based teaching is a learning approach that uses game elements in an educational context to increase student motivation, engagement and learning outcomes. The main goal is to make the learning experience more engaging, interactive, and effective by adopting the concepts and dynamics often found in games. Reforming the assessment method is essential so that the students' momentum in interest, motivation and focus can be increased and continued until they achieve each course objective.

Assessment through Gamification in Teaching and Learning
Assessment, measurement and testing are closely related and interrelated. It is sometimes used interchangeably to gather information about student learning and achievement. Assessment is operationally defined as part of the educational process in which teachers assess student achievement by collecting, measuring, analyzing, synthesizing and interpreting information related to student performance about the curriculum objectives set for their level and following a systematic procedure (Suwandi, 2023). Assessment in Education is also a process that determines student learning progress (Aitzhanov, 2020).
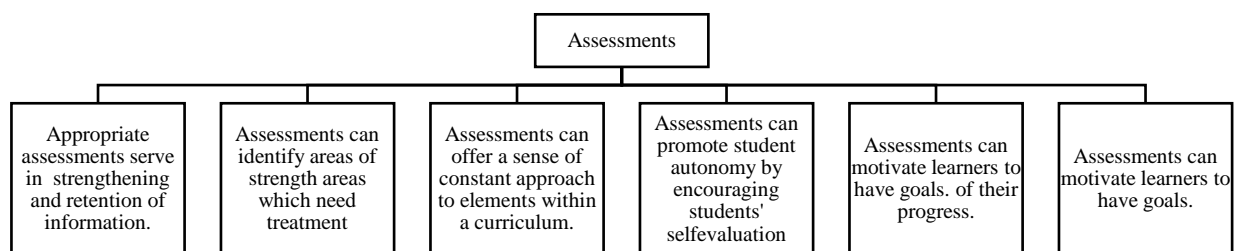

Figure 1: Basic principles for assessment. Source: Brown (2004)

According to Brown (2004), there are basic principles for assessment, as shown in Figure 1, which shows the importance of student motivation when involved in any assessment (Pitoyo, 2020). Research by Johnson et al (2016), explored the implementation of gamified assessment in high school science classes. By integrating a gamified learning platform that tracks student progress and rewards achievement with virtual badges and rewards, the study found increased student engagement and motivation. The gamified approach improves student performance in assessment and fosters the spirit of cooperation and competitiveness in the classroom.

Using games in education has various benefits, and several game design mechanics have demonstrated success in educational environments (Stott & Neustaedter, 2013). The approach that uses game methods in the teaching and learning process makes the learning process more exciting and interactive, in addition to turning activities that were not initially games into a formal and severe play activity (Cugelman, 2013). Lander and Callan (2011), define gamification as "the use of elements associated with games such as game mechanics for educational purposes to create more engaging learning". It is supported by the definition given by Deterding et al (2011), who proposed a definition of differentiated gamification in the broader context of serious games and the design of playful interactions. They define gamification "as the use of game design elements in non-game contexts" with the objective

"to motivate and increase user activity and retention". It shows that the use of gamification not only aims to increase student engagement during learning but can also positively impact the assessment process in the classroom. Educators can create a more dynamic approach by incorporating game elements and mechanics into assessment activities, likely increasing student motivation and engagement in their learning process. Evaluation using gamification in the course implementation needs to be a game, either to impart knowledge or evaluation. It aims to make learning sessions more engaging, motivating and effective for students. The gamification-based assessment aims to improve the learning experience, encourage active participation, and provide effective feedback, in addition to assessing students' understanding of the course being delivered.

Motivation and Student Engagement through Gamification
Motivation has often been grouped into two main types: extrinsic and intrinsic (Dichev et al., 2014; Othman, 2023). With extrinsic motivation, a person tends to do a task or activity mainly because doing so will yield a reward upon completion. Intrinsic motivation, in contrast, is characterized by doing something purely for enjoyment or fun. Intrinsic motivation is better known as internal motivation. The result of this intrinsic drive exists to meet physiological and psychological needs (Azman et al., 2018). In today's learning context, the alternatives available in education methods, especially those involving online learning, require more self-regulation, intrinsic motivation, time management and student freedom (Dichev, 2014). This means that students need intrinsic motivation not only to complete assignments but also to complete assignments independently and ensure they are on the right track without constant monitoring. William K (2011), in his study Five Key Ingredients for Improving Student Motivation, looks at the issue of students behaving like a "consumer" in learning, which they see as another acquisition to be obtained rather than a learning process. As a result, the purpose of going to class for them has more to do with grading and standing than with learning and experience. The problem stems from the traditional education system that encourages extrinsic motivation. It creates extrinsically motivated students, many of whom come to class because they have to, for attendance, grades, or other external motivators (Lei, 2010).

Students should also be intrinsically motivated when they come to class because they want to learn and participate in learning activities for themselves (Dichev, 2014). This is also supported by Landers (2014), who proves that applying gamification methods can influence students' behaviour and attitudes, which will positively affect their intrinsic motivation. Therefore, the use of gamification methods is part of increasing student motivation and improving the quality of student learning. From student involvement, sustaining the student's interest and participation is a struggle that leaves the educator in a quandary (Ab Rahman, 2019). In order to ensure the effectiveness of learning in the classroom, student engagement is essential because it is an activity done physically or mentally by students in their efforts to gain knowledge (Lee & Hammer, 2011; Dixson, 2015). Several studies on student engagement support gamification as a powerful tool for enhancing student engagement in classrooms. A study by Smith et al (2018), implemented a gamified approach in high school mathematics classes. By integrating a digital platform where students earned points for solving math problems correctly and collaborating on group challenges, the researchers observed a significant increase in student engagement and participation rates (Smith T. et al., 2018). Butgereit (2017), used the gamification method with adult students in an internet-based

module, showing that gamification increased student engagement during learning. This suggests there is an active participation drive by creating a dynamic environment where students are encouraged to explore, test, and collaborate with peers through gamification-based assessment.

Methodology

A quantitative study was conducted among second-year social science students of the Faculty of Applied Social Sciences, Universiti Sultan Zainal Abidin, Malaysia, and had enrolled in Social Science courses (CDA20803: Religion and Society) following summative assessments in semester 1 2023/2024. Data was collected through an online survey, and a Google form link was shared after the summative assessment. The final sample (N=44) reported their gender as male (n=17) and female (n=27), ethnicity as Malay (n=44) and religion as Islam (n=44). The students were given the same lectures, assignments, and examination tests, and all were required to complete the badge system as part of the class grade. The online survey consisted of 7 sections for participant demographics, perceptions on the usefulness of gamification, ease of use, attitudes, student engagement, interaction and student motivation. The participants were asked to rate each of the 21 statements using a 5-point Linkert scale ranging from 1 (strongly disagree) to 5 (strongly agree). A total of 18 perception statements were from the evaluation tool developed by Ab. Rahman, R., et.al (2018). Items (statements) included in the questionnaire have been shown to have high internal consistency (Cronbach alpha=0.96). Descriptive statistics and the Mann-Whitney test were computed using SPSS ver. 25.

Results and Discussion

The respondents in this study were students from the social science bachelor's degree program who took the course CDA20803 Religion and Society. There were 44 students involved, including 17 male students and 27 female students. The quantitative data findings are displayed in Table 1 below.

Table 1

Analysis of Mean and Standard Deviation for Study Variables

Potential		Mean Value	Std Deviation	level
Perceived Usefulness		**4.341**	**.5981**	**High**
useful in improving performance	4.318		.7088	High
useful in increasing output	4.340		.6800	High
useful in increasing desire	4.273		.7270	High
useful in learning	4.431		.5865	High
Easy Using		**4.6136**	**.5891**	**High**
Fleksibel	4.4091		.6583	High
clear and understandable interface	4.3636		.7493	High
gamification system does not require much mental effort	4.1591		.8611	High
gamification system is easy to use	4.3864		.6893	High
Attitude		**4.3333**	**.7188**	**High**
Gamification is a good idea	4.2727		.7583	High
like to learn using gamification	4.3864		.7222	High
look forward to learning by gamification	4.3409		.7758	High
Student Engagement		**4.4015**	**.6453**	**High**
Taking note in class	4.3636		.7803	High
Listening carefully	4.4091		.6927	High
continuously study	4.4318		.7281	High
Interaction Engagement		**4.4886**	.5170	High
Fun times in learning	4.5682		.5865	High
Active in the group discussion	4.5000		.5906	High
Helping friends	4.5227		.5901	High
Ask questions	4.3636		.6134	High
Motivation		**4.6591**	1.4278	High
Motivation to be more enthusiastic	4.5227		.5901	High
Motivation to be more prepared in class	4.4091		.6220	High
Motivation to prepare more before class	4.3864		.6547	High

Based on Table 1 data analysis of the mean and standard deviation of each variable, the highest mean is on the element of motivation, which is 4.66 (sd=1.43), followed by easy using, which is 4.61 (sd=0.59), interaction engagement, which is 4.49 (sd=0.65), student engagement which is 4.40 (sd=0.65). The lowest mean value is the usefulness element, with a value of 4.34 (sd=0.59), and attitude, which is 4.33 (sd=0.72). Overall, it was found that the level of agreement of the study respondents on most of the items in this section was high. The analysis shows that gamification methods in assessment are very important in student learning. The analysis shows that most respondents believe gamification assessment is useful and easy to use. Likewise, with the other three elements, which are attitude, interaction involvement and student involvement, most students agree that gamification positively affects those elements. As for motivational elements, the average respondent agreed that gamification assessment increases their motivation in learning. The data shows that gamification assessment is a

method students choose to increase their motivation and engagement during learning. Differences in the effects of gamification on student motivation and engagement according to gender. According to Pallant (2011), the Shapiro-Wilk method is suitable for small samples of less than 100. This analysis aims to find answers to the following two hypotheses.

Ho 1: There is no significant difference in motivation based on gender.

Ho 2: There is no significant difference in student engagement based on gender.

Table 2
Mann-Whitney Test on Motivation and Student Engagement

	Gender	N	Mean Rank	Asymp. Sig. (2 tailed)
Motivation (mean : 4.65)	Male	17	27.32	0.038
	Female	27	19.46	
Student Engagement (mean: 4.48)	Male	17	25.12	0.255
	Female	27	20.85	

Table 2 shows the Mann-Whitney U Test performed to determine the effect of gamification on student motivation and engagement according to gender. The analysis shows a significant difference in motivation between male and female students, where male students tend to have higher motivation than female students. This justification can be supported by the Mann-Whitney U statistical analysis, which shows a value of p = 0.038, below the significance level of 0.05, indicating that the null hypothesis (Ho1) is rejected. The mean rank for men is 27.32, while for women is 19.46, which shows a significant difference in motivation between these two groups. While the Mann-Whitney U test related to student engagement based on gender showed a p-value of 0.255, this means that the variance of the two groups is the same as the mean rank for males (28.21) and females (18.91). So, H_o2 is accepted.

The Relationship of Gamification to Student Motivation and Engagement
This analysis determines the relationship between variables regarding the usefulness of gamification, ease of use, attitudes, interaction with student engagement, and student motivation through a gamification approach. Therefore, hypothesized that.

H_o3: There is no significant relationship between perceived usefulness and motivation.
H_o4: There is no significant relationship between easy usage and motivation
H_o5: There is no significant relationship between attitude towards motivation
H_o6: There is no significant relationship between student interaction and motivation
H_o7: There is no significant relationship between perceived usefulness and student engagement.
H_o8: There is no significant relationship between easy usage and student engagement
H_o9: There is no significant relationship between attitude towards student engagement.
H_o10: There is no significant relationship between student interaction and student engagement

Table 3

Correlation Analysis of the Relationship between Gamification and Student Motivation and Engagement

		Motivation	Student Engagement
Usefulness	Spearman's rho	.695**	.534**
	Sig. (2-tailed)	.000	.001
	N	44	44
Easy using	Spearman's rho	.662**	.604**
	Sig. (2-tailed)	.000	.001
	N	44	44
Attitude	Spearman's rho	.806**	.617**
	Sig. (2-tailed)	.000	.001
	N	44	44
Interaction engagement	Spearman's rho	.756**	.662**
	Sig. (2-tailed)	.000	.001
	N	44	44

Based on Table 3, the correlation test results show the relationship between the usefulness of gamification, ease of use, attitudes, and interaction with student motivation towards the use of assessment gamification in learning. The results found that the p-value for the usefulness of gamification, easy use, attitudes, and interaction against motivation is p= 0.000. This shows a significant relationship between the usefulness of gamification, easy use, attitudes, and student motivation towards the gamification approach in learning. In terms of the strength of the relationship, it was found that the attitude towards the use of gamification elements is higher, which is r=0.806**, compared to interaction which is r=0.756**, usefulness r=0.695**, and Easy using r=0.662**. So, Ho3, Ho4, Ho5 and Ho6 are rejected from this data. In terms of the strength of the relationship, based on the value of the Davis coefficient, it was found that the strength of the correlation value for the attitude and interaction variables is very strong.

In comparison, the relationship of the correlation value for the variables of usefulness and easy usage is strong. This shows that in the context of student motivation, the elements of attitude and interaction are considered when carrying out assessments through gamification. This shows that the higher the students' perception of usability, ease of use, attitude, and interaction towards gamification assessment, the higher their motivation to engage and participate in the learning process, which is essential in improving student performance. This approach can increase students' intrinsic motivation, an essential factor in long-term educational success. This finding also provides theoretical and practical support that suggests using gamification as an effective strategy for improving student learning and engagement.

The correlation test results for the student engagement variable show the relationship between the usefulness of gamification, ease of use, attitudes, and interaction with student involvement in using the gamification assessment approach. The result found that the p-value for the usefulness of gamification, easy use, attitudes, and interaction towards student

involvement is p= 0.000. This shows a significant relationship between the usefulness of gamification, easy use, attitudes, and student involvement in the gamification assessment approach in learning. Regarding the strength of the relationship, it was found that interaction engagement towards the implementation of gamification evaluation is higher, which is r=0.662**, compared to attitude, which is r=0.617**, Easy using r=0.604** and usefulness r=0.534**. So from this finding, Ho7, Ho8, Ho9 and Ho10 are rejected. In terms of the strength of the relationship, it shows that the correlation value for all variables is strong based on the value of the Davis coefficient.

Findings indicate that higher perceptions of usefulness, ease of use, attitudes toward gamification, and engagement interactions are associated with increased active engagement in gamified assessment activities. Factors like interaction with gamification elements and a positive attitude towards this technology are important in creating a competitive and highly motivated learning experience (Hamadah, 2023; Lamija, 2023). This also reinforces the theory that suggests that the use of gamification technology can effectively stimulate motivation and engagement among students (Lamija, 2023; Errol, 2021), thereby increasing the validity of the results by confirming the stability and consistency of the relationship studied in the context of gamification assessment.

Final Considerations
Gamification assessment shows that students' perception of the usefulness and ease of use of gamification technology significantly affects their level of involvement in the learning process. In addition, students' attitudes towards gamification and their active interaction with gamification elements also play an important role in influencing their motivation and level of involvement in using this approach. This research can show a great connection in the context of modern education that emphasizes student-centred learning and prioritizes active involvement in learning activities. This finding is relevant in modern education, emphasizing student-centred learning and encouraging active involvement in learning activities. The gamification strategy can create an exciting and motivating learning experience and strengthen the relationship between the subject matter and the students' real life. This step will help create a dynamic and exciting learning environment and strengthen students' intrinsic motivation to learn and grow holistically.

Theoretical and Contextual Contribution
This study is important because it provides practical insight into how gamification can be adapted to enhance the learning experience in non-technical subjects. This research highlights that students enrolled in social science courses can benefit from a gamified assessment approach, which makes teaching and learning content more interactive and engaging, and can even offer practical implications for educators who want to implement gamification strategies in the classroom. In addition, this study proves the potential of gamification to change the educational experience by making learning more interesting, interactive and in line with the needs of contemporary students.

Ethical Considerations
Participants were informed about the purpose of the study, procedures involved, potential risks, and benefits, and their voluntary participation was sought. Informed consent was obtained from all participants before they participated in the study. Confidentiality of

participants' responses and anonymity were maintained throughout the research process. Participants were assured that their responses would be used for research purposes only and would remain confidential.

Conflict of Interest
The authors declare no conflicts of interest.

Acknowledgement

References
Adipat, S., Laksana, K., Busayanon, K., Asawasowan, A., & Adipat, B. (2021). Engaging students in the learning process with game-based learning. *The fundamental concepts. International Journal of Technology in Education (IJTE)*, 4(3), 542-552. https://doi.org/10.46328/ijte.169

Aitzhanov, A. (2020), Role of Education Assessment for Education Management. *Challenges of Science. Issue III*, 2020. Pp.: 27-30. https://doi.org/10.31643/2020.003.

Andrew, J. R. & Willingham, D. (2009). 21st Century Skills: The Challengers Ahead. Educational Leadership, Vol 67(1). 16-21.

Rahman, A. (2018). Gamifikasi Global Zakat Game Dalam Pendidikan Islam. Nilai: Penerbit USIM

Brown, T. L. G. (2004). Teachers' conceptions of assessment: implications for policy and professional development. Assessment in Education, 11 (3), 305-322.

Kiflee, S., Hassan, S. A., Khalid, F., Maaulot, N., & Yusof, R. (2020). "Analisis Keberkesanan Kaedah Multimedia dalam Pengajaran dan Pembelajaran Terhadap Pelajar Pintar dan Berbakat. Jurnal Personalia Pelajar. 23(2): 129-136.

Cugelman, B. (2013). Gamification: what it is and why it matters to digital health behavior change developers. JMIR Serious Games, 1(1), e3.

Deterding, S., Dixon, D., Khaled, R., Nacke, L,. (2011). From game design elements to gamefulness: defining gamification. MindTrek '11 Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments; p. 9-15.

Deterding, S., Khaled, R., Nacke, L., Dixon, D. (2011). Gamification: Toward a definition. CHI Gamification Workshop Proceedings; p.12-15

Dichev, C., Dicheva, D., Angelova, G., Agre, G. (2014) From Gamification to Gameful Design and Gameful Experience in Learning. Cybernetics And Information Technologies, 14 (4), 80-100.

Elshiekh, R. and Butgerit, L. (2017) Using Gamification to Teach Students Programming Concepts. Open Access Library Journal, 4, 1-7. doi: 10.4236/oalib.1103803

Errol, S., Rivera., Claire, L. P., Garden. (2021). Gamification for Student Engagement: A Framework.. Journal of Further and Higher Education, doi: 10.1080/0309877X.2021.1875201

Halpern, D. F., & LaMay, M. L. (2000). The smarter sex: A critical review of sex differences in intelligence. Educational Psychology Review, Vol 12(2), 229-246,

Hamadah, Alsadoon. (2023). The Impact of Gamification on Student Motivation and Engagement: An Empirical Study. Dirāsāt, doi: 10.35516/edu.v50i2.255

Johnson, L., Becker, S., Estrada, V., & Freeman, A. (2016). NMC Horizon Report: 2016 Higher Education Edition. The New Media Consortium.

Lamija, H. (2023). The Effects of Gamification On Student Motivation And Achievement In Learning English As A Foreign Language In Higher Education. MAP education and humanities, doi: 10.53880/2744-2373.2023.4.10

Landers, R. N. (2014). Developing a Theory of Gamified Learning: Linking Serious Games and Gamification of Learning. Simulation & Gaming, 45(6), 752-768. https://doi.org/10.1177/1046878114563660

Lubis, M. A., Taib, S. H., & Lubis, I. (2022).Integrasi Ilmu dan Inovasi Pendekatan Digital dalam Pendidikan Islam Mendepani Era Revolusi Industri 4.0, Journal On Islam and Civilization (ACER-J). 769X, 5(1). 27-41.

McGrath, N., & Bayerlein, L. (2013). Engaging online students through the gamification of learning. 30th ascilite Conference 2013 Proceedings.

Pitoyo, M. D. Sumardi, & Asib. (2020). Gamification-Based Assessment: The Washback Effect Of Quizizz On Students' Learning In Higher Education. International Journal of language Education, Vol. 4 No.1, March 2020 pp. 1-10

Ahmad, N. L., Looi, S. S., Yusof. H. W. (2019). Kepentingan Amalan Pengajaran Dan Pembelajaran Abad 21 Terhadap Pembangunan Pelajar. Volume: 4 Issues: 28 [March, 2019] pp.-28-51] International Journal of Education, Psychology and Counseling eISSN: 0128-164x

Rahimi, N. S. A. N. (2022). Amalan Pembelajaran Teradun Sebagai Satu Pendekatan Pembelajaran Norma Baharu. Jurnal Dunia Pendidikan, 4(1), 186-196.

Shear, L., Novais, G., Means, B., Gallagher, L. & Langworthy, M. (2010). ITL Research Design. Menlo Park, CA: SRI International.

Stott, A., & Neustaedter, C. (2013). Analysis of gamification in education. Retrieved from http://carmster.com/clab/uploads/Main/Stott-Gamification.pdf

Syaubari, O., Yusof, A. B., Setambah, M. A. B., Shuib, T. R., & Rahim, M. M. (2023). Pelaksanaan Gamifikasi Kurikulum Al-Quran dan Fardhu Ain (KAFA). Jurnal Ilmi Vol 13: 1-14.

Williams, K., C. William S. (2011). Five Key Ingredients for Improving Student Motivation. Research in Higher Education Journal, Vol. 12,