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Teacher and Student Responses to Educational Games Based on the Fisher-Yates Shuffle Algorithm in Learning Advertising Texts, Slogans, and Posters

(Respons Guru dan Siswa terhadap Permainan Edukatif Berbasis Algoritma *Fisher* Yates Shuffle dalam Mempelajari Teks Iklan, Slogan, dan Poster)

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Abstract: The suitability of games as an effective learning medium provides deep insight into the interactions between teachers and students in innovative learning contexts. The purpose of this research is to (1) describe students' active responses to the "TISTER" application as an Android-based learning media and (2) describe teachers' responses to the "TISTER" application as an Android-based learning media. Qualitative descriptive method with a case study model. The research subjects in this study were VIIIC students and Indonesian language teachers at SMP Negeri 2 Jatisrono. The research object includes student and teacher responses to educational games. Research data is information and facts. Primary data sources are direct observations, interviews, and questionnaire instruments. Data was collected through in-depth interviews with teachers, classroom observations when the application was used, and questionnaire analysis of class VIIIC student responses. Testing the validity of this data was carried out using source triangulation techniques. Data analysis method by Miles and Huberman. The results of research on student responses showed that there was an increase in activity of 87%, while 13% felt that they had not experienced an increase in activity. The results of the research on teacher responses were the suitability of the aspects assessed (material content, learning objectives, targets, completeness, and relevance of the content). The percentage of assessments from teacher 1's responses to indicators 1-5 (V1-V5), namely 80%, 82%, 80%, 86% and 82%. Teacher responses in terms of material and media aspects in educational games were reviewed by two teachers each against five performance indicators (V1-V5).

Keywords **fisher-yates shuffle algorithm, Indonesian language, learning media, educational games, response**

Abstrak Kesesuaian permainan sebagai media pembelajaran yang efektif, memberikan wawasan mendalam tentang interaksi antara guru dan siswa dalam konteks pembelajaran yang inovatif. Tujuan penelitian ini adalah untuk (1) mendeskripsikan respons keaktifan siswa terhadap aplikasi "*TISTER*"sebagai media pembelajaran berbasis android dan (2) mendeskripsikan respons guru terhadap aplikasi "*TISTER*"sebagai media pembelajaran berbasis android. Metode deskriptif kualitatif dengan model studi kasus. Subjek penelitian dalam penelitian ini adalah siswa VIIIC dan guru bahasa Indonesia di SMP Negeri 2 Jatisrono. Objek penelitian mencakup respons siswa dan guru terhadap permainan edukatif. Data penelitian adalah informasi dan fakta. Sumber data primer hasil pengamatan langsung, wawancara dan instrumen kuesioner. Data dikumpulkan melalui wawancara mendalam dengan guru, observasi di kelas saat aplikasi digunakan dan analisis kuesioner terhadap respons siswa kelas VIIIC. Uji keabsahan data ini dilakukan dengan teknik triangulasi sumber. Metode analisis data oleh Miles dan Huberman. Hasil penelitian respons siswa ditunjukkan ada peningkatan keaktifan sejumlah 87%, sedangkan sejumlah 13% merasa belum mengalami peningkatan keaktifan. Hasil penelitian respons guru kesesuaian aspek yang dinilai (isi materi, tujuan pembelajaran, sasaran, kelengkapan, dan relevansi isi). Persentase penilaian dari respons guru 1 pada indikator 1-5 (V1-V5), yakni 80%, 82%, 80%, 86% dan 82%. Respons guru ditinjau dari aspek materi dan media pada permainan edukatif ditinjau oleh masing-masing dua guru terhadap lima indikator kinerja (V1-V5).

Kata Kunci **algoritma *fisher yates shuffle*, bahasa Indonesia, media pembelajaran, permainan edukatif, respons**

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INTRODUCTION

A good education can be realized through a quality learning process (Wayan Mertha & Mahfud, 2022). Education that collaborates with multimedia can play a major role along with technological changes. Multimedia assistance can help teachers in teaching and increase student learning motivation. This means that you can continuously and repeatedly review and practice unfamiliar content to achieve learning mastery. Therefore, multimedia-based education continues to be promoted (Dipani, 2023). Chen and Kotiasih stated that modern education is increasingly enhanced by the use of multimedia as a learning aid that enriches students' learning experiences. Multimedia provides opportunities for students to gain a deeper understanding through the use of interactive images, audio, and video (Chen et al., 2018; Kotiasih et al., 2022). Based on the realm of multimedia-based education, it can effectively improve the quality of teaching to penetrate the boundaries of time and space. The application of multimedia can create quality in teaching.

Multimedia applies the ability to manage text, graphics, images, audio, animation, or video in the work environment (Marisda et al., 2020; Widodo et al., 2019). The use of various media in delivering programs aims to create varied sound and light effects. Education uses computer communication models to present learning materials and organize the learning environment. The scope of interactive computer multimedia teaching contains the characteristics of images and audio combined well (Handican et al., 2023). The role of technology in educational reform is further enhanced by the diversity and openness of learning environments obtained through communication and media technology.

The mobile learning application implementing the Fisher-Yates Shuffle algorithm has attracted the attention of many groups. The Fisher-Yates Shuffle algorithm method is an optimal randomization method in application development because it can randomize a large amount of material regarding advertising texts, slogans, and posters (Farhan et al., 2022; Revano et al., 2019). The benefits that can be obtained are in the form of preventing user fraud. This is desired to minimize students' memorizing answers without understanding the material when the questions are fixed or not random. An educational game based on the Fisher-Yates Shuffle algorithm is a method that can maintain student engagement and improve learning (Irfan et al., 2020; Rahmiati et al., 2021).

Educational games are seen as an innovative and useful tool in the world of education. The educational game "TISTER" (Advertising Texts, Slogans, and Posters) combines entertainment with learning. This game was created as an interesting and effective form of education. The educational game "TISTER" is an innovative application created using the Macromedia Flash application. The application is supported by the Fisher Yates Shuffle algorithm providing a dynamic and varied learning experience. The educational game "TISTER" emerged as an innovative solution in the realm of learning, carrying the concept of advertising texts, slogans, and posters to enrich the online learning experience.

In connection with research regarding the response to educational integration through digitalization conducted by Kartini & Putra (2020); Artanti et al., (2022); Marhaeni et al., (2023); Ida Kholida et al., (2020); Anita & Astuti (2022); Agustin et al., (2021); Mana (2021) concluded that this case study shows that teachers in disadvantaged areas have succeeded in catching up with them in terms of access to the latest information related to education policy. Seven researchers discussed user responses to digital-based learning media. The results of the research from the literature review are that the results of the student questionnaire responses to Android-based learning media have

increased. This literature review examines user responses utilizing various applications (Adobe Flash, Tepytha, Macromedia Flash, Canva, Flip Builder, TikTok, MIT App Inventor 2). The similarities between previous researchers and this research lie in the use of applications as learning media and in describing user responses. The difference in this research concerns the educational game based on the Fisher-Yates Shuffle algorithm and its relevance to the material.

In line with research conducted by previous researchers (state of the art) conducted by Muji et al., (2021); Nasher & Ferdiansyah, (2021); Shute et al., (2021) revealed that educational games are utilized through various media (based on applications that are used). Different from the results of previous research, this research reveals the escalation of indicators of student activity through the implementation of an educational game based on the Fisher-Yates Shuffle algorithm. Observing learning activities and utilizing educational game media has a positive impact. The classroom atmosphere during learning can be developed to be more enjoyable. This is related to the presence of teaching media.

Things to consider in developing applications using the Fisher Yates Shuffle algorithm are based on previous research which has been proven to obtain positive responses from students and teachers. Therefore, it becomes practical to use as a learning medium with good results in testing. Apart from that, the use of Android-based learning media is also able to increase student learning motivation. The purpose of this research is to (1) describe student responses to educational games based on the Fisher-Yates Shuffle algorithm and (2) describe teacher responses to educational games based on the Fisher-Yates Shuffle algorithm.

This research makes a significant contribution to the academic literature by investigating teacher and student responses to the use of educational games based on the Fisher-Yates Shuffle algorithm in learning advertising texts, slogans, and posters. The research results show that the use of educational games received a positive response, increasing students' interest, involvement, and understanding of complex learning material. Teacher responses also highlight the effectiveness of games in facilitating innovative learning processes. The contribution of this research not only enriches understanding of the use of technology in education but also provides practical views on developing relevant and effective learning strategies in the digital era. Thus, this article provides insights for educational practitioners and researchers to integrate educational games in diverse learning contexts.

METHOD

This research is qualitative research that applies a fixed case study research strategy, because the problem formulation and research objectives have been determined in advance to be achieved (Montiel-Ruiz et al., 2023). Through a case study approach, this research focuses on one junior high school as the main unit of analysis. This research uses a case study approach as the main type of research. The research subjects were Indonesian language teachers and class VIIIC students at SMP Negeri 2 Jatisrono and the educational game "TISTER". The research object is the variable studied by the researcher at the research site. Research objects include student and teacher responses.

The data needed for the research is a questionnaire and interview information regarding student and teacher responses to educational games. The data sources are the results of interviews (Indonesian language teachers at SMP Negeri 2 Jatisrono) and questionnaire instruments (student active responses). Data collection regarding student and teacher responses to educational games was carried out using observation, interviews, and questionnaire distribution techniques. Observation techniques are implemented during the learning process (seeing student activity during the use of educational games). Collecting data about student responses using questionnaire distribution to class VIIIC students.

Data validity testing was carried out using source triangulation techniques. Source triangulation was carried out by collecting data through several methods (interviews, observations, and questionnaires). Source triangulation aims to increase the validity and validity of findings by ensuring the consistency and reliability of the information obtained (Montiel-Ruiz et al., 2023; Papautsky et al.,

2015). The research provides a more holistic and in-depth understanding of student and teacher responses to the "TISTER" application and its relevance as an Android-based learning medium.

Table 1
Respondent Profile

Respondent	Gender	Number of Respondent(s)	Percentage
Student	Boy(s)	16	47,05%
	Girl(s)	14	41,17%
Teacher	Men	0	0%
	Women	4	11,76%
Total		34	100%

Products are assessed based on student responses using a questionnaire based on eight aspects of assessment. The test subjects for this research were 30 students in class VIIIC of SMP Negeri 2 Jatisrono. Data obtained from product trials carried out by students is then converted into qualitative scores based on ideal assessment criteria. The number of male students who were assessed using the questionnaire was 16. 14 female students were assessed via questionnaire.

RESULTS AND DISCUSSION

Through the use of media, it should be able to provide convenience for students to achieve their goals of learning (Hidayatullah & Haryadi, 2018). Text is an expression of social activity, both in oral and written form, which follows a comprehensive series of thoughts (Damayanti et al., 2023; Riangsari & Sufanti, 2013). Advertisements as a form of communication media are always present in people's daily lives, appearing on various platforms such as television, newspapers, magazines, the internet, and on banners on the street. Advertising is used as a means to convey messages creatively and persuasively (Rahayu, 2015; Sukarno et al., 2021; Yulika et al., 2022). Advertising has long been a vehicle for communicating someone's need to sell or buy goods and services (Inderasari et al., 2021; Latifah et al., 2023). This text has a key role in providing clear, convincing, and stimulating information to the audience. The purpose of the advertising text is to influence certain actions (purchase a product or take part in the services offered).

In the era of globalization and increasingly fierce business competition, the role of slogans in attracting attention and creating a positive impression on consumers is becoming increasingly important. Slogans are a form of short communication used by various entities such as companies, governments, social organizations, or products to convey messages (Andayani, 2021; Sadzili et al., 2021). Slogans aim to build a brand image and influence consumer perceptions and people's behavior in a social or political context (Martinez-Alier, 2021; Mega et al., 2022; Sabrina et al., 2021). A successful slogan helps a brand differentiate itself from its competitors, reminds consumers of the brand's values, and builds consumer loyalty. This becomes a new problem for teachers in presenting learning material so that students achieve the expected learning goals (Purbawati et al., 2020).

Posters are a written communication tool to send messages and influence someone (Aliyah et al., 2018; Bella et al., 2021; Khusna & Hardjatno, 2022). Posters offer information using multimodality (refers to how the speaker communicates using different modes at the same time). Posters are a communication tool that uses images, illustrations, and text to convey messages. Language is a reflection of its speakers in society, therefore it can describe the culture of the society where the language is used (Putikadyanto et al., 2022).

Student Response to the "TISTER" Application as an Android-based Learning Media

The student responses analyzed were students' active responses to educational games. To realize students' activeness in directing themselves, the curriculum must function as an intrinsic experience that is beneficial to students' freedom and development. The use of educational games based on Macromedia Flash with the Fisher-Yates Shuffle algorithm as a learning medium has become a new variation. The implementation of this learning creates activity in class VIIIC students. This is

shown from the comparison of "whether or not there is an increase in activity" obtained from the responses of class VIIIC students. Students stated that there had been an increase in activity by 87%, while 13% felt they had not experienced an increase in activity. The response level of student activity in detail is presented in Figure 1.

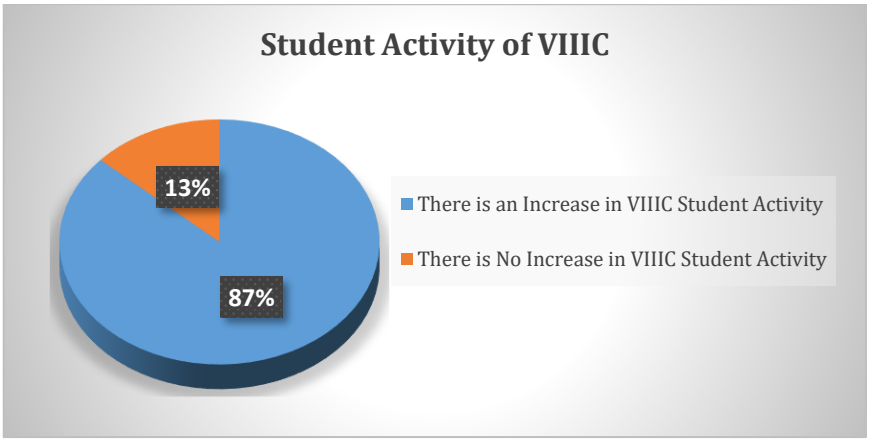


Figure 1
Student Activity of VIIIC.

Some students feel that there has been no increase in their activity during the learning process. Students who have not had an increase in activity are 13%. Closely related to the majority of class VIIIC students stating that there were changes for the better. In line with the results of observations in class VIIIC it has a positive impact on students' level of completion. A total of thirty class VIIIC students were able to solve questions optimally through educational games. Based on the results of the VIIIC student response questionnaire, it was explained that educational games encourage student activity in advertising text materials, slogans, and posters. This is in accordance with Suryana's (2018) research stating that the use of media has the potential to facilitate the delivery of material, increase the attractiveness of material presentation, encourage interaction, and help develop a positive attitude toward the learning process. The comparison percentage of class VIIIC students' responses was very large, namely 87%. The average percentage of each component is calculated by the formula:

Average Percentage Formula:

$$P = \frac{\Sigma_R}{\Sigma_X} \times 100$$

Source: (Aliyah et al., 2018)

Information:

P = Percentage of student responses
Σ_R = The number of scores for each criterion chosen by the student
Σ_X = The number of ideal scores for student responses to the "TISTER" application with the Fisher-Yates Shuffle algorithm.

After submitting the results of the calculation of the scores of thirty class VIIIC students using the average formula. Class VIIIC has thirty students (16 boys and 14 girls). The research results show student responses that the Macromedia Flash digital module is useful for increasing students' learning motivation and understanding in learning. The research discussion is supported by research by Supriharyanti et al., (2020) revealed that Macromedia Flash digital modules are effective for learning. In line with this research, observations on class VIIIC students showed that 26 students scored more than or equal to 75. Based on the research results, there were 87% of students who experienced increased activity. These results were obtained from the distribution of questionnaires to VIIIC students. Based on the results of the questionnaire given to class VIIIC students. This questionnaire

data is in the form of questions regarding indicators that influence student learning activity. Indicators that influence student learning activity (in the form of excitement, involvement, relevance, ease of use, graphic and audio quality, progress in learning, feedback, and platform suitability). Data from this questionnaire is used to complement the data that has been obtained through observation.

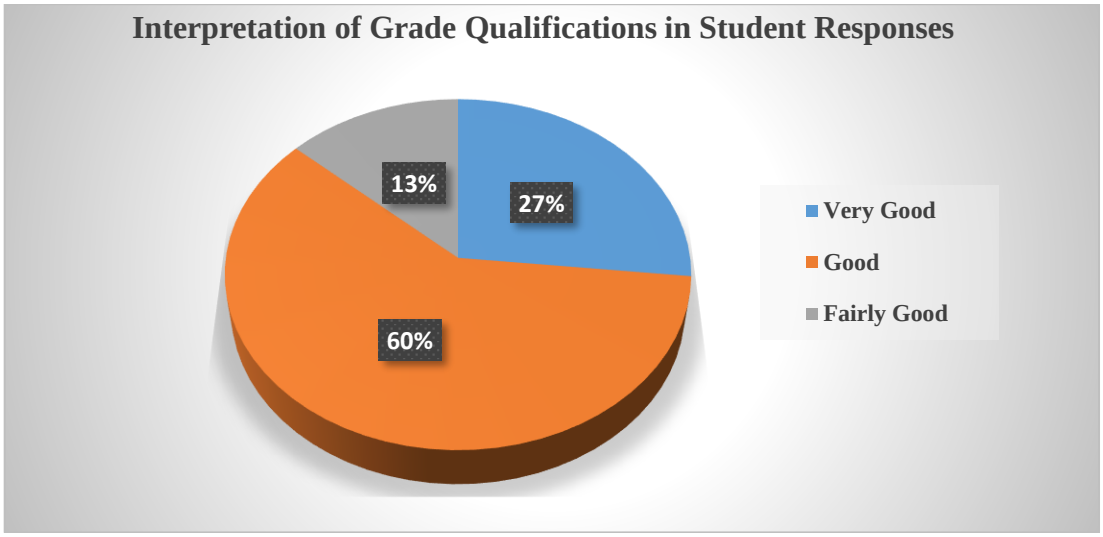


Figure 2
Interpretation of Value Qualifications in Student Responses

Student activity not only creates a dynamic learning environment but also ensures that every student is directly involved in the learning process (Nurhayati, 2020; Prasetyo & Abduh, 2021; Setiawan et al., 2021). This research resulted in student responses A, ACAA, FCM, FIS, HAP, K, VRB, and WAP through a circular questionnaire getting a score of 26 after calculating using a formula to obtain a percentage of 81.25%. The interval score results obtained by students based on interpretation criteria are included in good qualifications (B). Based on this, students A, ACAA, FCM, FIS, HAP, K, VRB, and WAP were among the students who experienced increased activity. APS, APK, BMFO, JAF, MAA, and NRS students got a score of 27 after calculating using a formula to get a percentage of 84.37. The interval score results obtained by students based on interpretation criteria are included in good qualifications (B). Based on this, APS, APK, BMFO, JAF, MAA, and NRS students are among the students who experience increased activity.

The research results were found to be related to VIIIC student responses based on interpretation criteria including very good qualifications (SB). AIF, BVV, MG, PAM, and RD students got a score of 28 after calculating the formula with a percentage of 87.5. AMHP and VOT students got a score of 29 after calculating using a formula to get a percentage of 90.62. VLK students got a score of 31 after calculating using a formula to get a percentage of 96.87. It can be concluded that these students have experienced increased activity after being introduced to educational games.

As a comparison, four students who received the interpretation criteria were categorized as quite good (CB). BAM, EAD, RGK, and RJP students, through a circular questionnaire, got a percentage of less than 65. It can be concluded that these four students have not made progress in being active during learning.

Interpretation of value qualifications in students' responses to educational games is classified into three. First, very good qualifications (SB) with a percentage interval of $85\% \leq P \leq 100\%$ (meaning students who get a percentage score of 85 to 100). Eight students in class VIIIC contain very good (SB) qualifications. In detail, Figure 2 shows that 27% of VIIIC students have very good qualifications (SB).

Second, good qualifications (B) with a percentage interval of $65\% \leq P \leq 85\%$ (includes students who get grades in that range). Eighteen students in class VIIIC have good qualifications (B).

A detailed understanding of the distribution of student grades can be seen in Figure 2. It illustrates that as many as 60% of VIIIC students obtained good qualifications (B). In line with the good assessment criteria, it provides a clear picture of the level of competency and mastery of subject matter by class VIIIC students. This in-depth analysis of grade distribution provides additional insight into the factors that contribute to student academic success, providing a basis for improvement efforts and the development of more effective learning strategies to achieve educational goals.

Third, quite good qualifications (CB) with a percentage interval of 45% ≤ P ≤ 65% (meaning students who get a percentage score of 45 to 65). Class VIIIC students contain four students who qualify as quite good (CB). In detail, Figure 2 shows that 13% of VIIIC students have quite good qualifications (CB). The main factor is differences in student learning preferences. Each student has a unique learning style, and some students are more responsive to different learning methods. Motivational factors and initial level of understanding of the material can also influence students' responses to learning. The conditions of the learning environment and social support from classmates or teachers can also play a role in influencing student activity during learning. Therefore, to increase the effectiveness of learning, teachers need to pay attention to and accommodate the diverse learning needs of each student, as well as consider these factors in planning and implementing learning.

The conclusion is that the use of educational game media significantly contributes to increasing student activity. This is manifested based on the participation rate of 87% which is detailed in Figure 1. This finding is consistent with the questionnaire analysis conducted on class VIIIC students. The application of educational game media turns out to be able to stimulate student activity in the learning process, create an environment that supports active interaction, and improve a more comprehensive understanding of concepts.

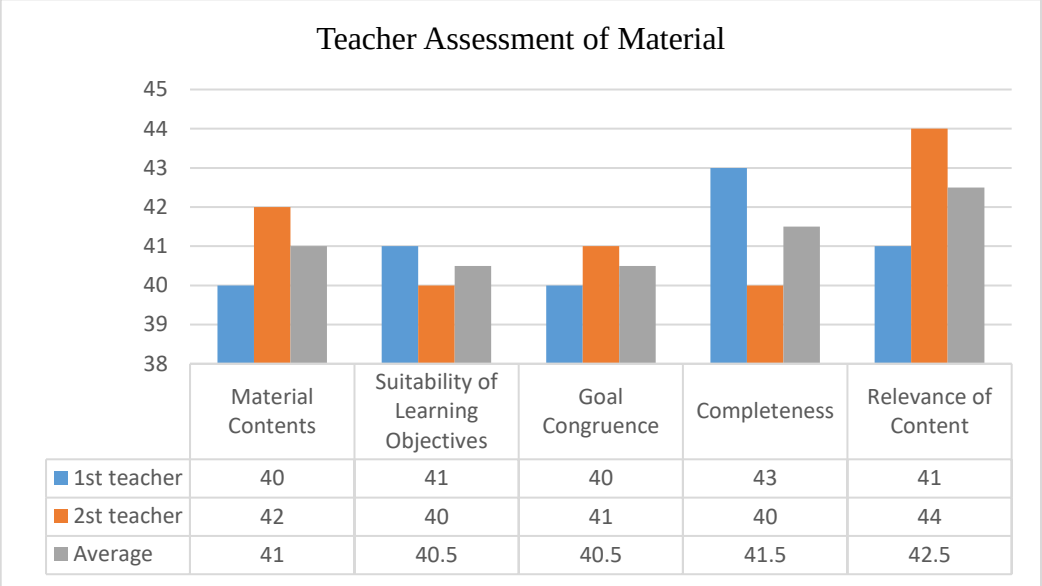
The research results show that the use of Macromedia Flash-based educational games with the Fisher-Yates Shuffle algorithm has important implications for increasing student activity in learning. Student responses to the educational games, measured as increased activeness, showed that the majority of students experienced significant increases in their participation and involvement in the learning process. This emphasizes the importance of using technology, especially educational games, as a learning aid that can stimulate students' interest and motivation to learn. The results of value calculations and questionnaire distribution show that the Macromedia Flash digital module makes a positive contribution to students' learning motivation and understanding. Observations of class VIIIC students show that the majority of them achieved satisfactory grades and experienced an increase in the learning activity.

This implication is consistent with research by Supriharyanti et al., (2020) which supports the effectiveness of Macromedia Flash digital modules in learning. This research highlights the importance of using multimedia technology, especially educational games, in supporting an interactive and effective learning process. The implications of the results of this research can be the basis for developing a curriculum that pays attention to students' intrinsic experiences and provides new variations in learning methods. Apart from that, these findings can also be a reference for educators and researchers in designing more effective and enjoyable learning strategies.

Teacher Response to the "TISTER" Application as an Android-based Learning Media

The results of the assessment were carried out by two teachers regarding advertising text material, slogans, and posters in the educational game application "TISTER". There are five aspects assessed (in the form of material content, suitability of learning objectives, suitability of targets, completeness, and relevance of content). Researchers implemented the formula that has been described to calculate the percentage of assessments for each teacher. The percentage of assessments from the 1st teacher's response to indicators 1-5 (V1-V5), namely 80%, 82%, 80%, 86% and 82%. The percentage of assessments from the second teacher's response to indicators 1-5 (V1-V5), namely 84%, 80%, 82%, 80% and 88%.

Figure 3
Display of Educational Game Materials "TISTER".



	Material Contents	Suitability of Learning Objectives	Goal Congruence	Completeness	Relevance of Content
1st teacher	40	41	40	43	41
2st teacher	42	40	41	40	44
Average	41	40.5	40.5	41.5	42.5

Figure 4
Teacher Assessment of the Material

Percentage of assessment from the 1st teacher on indicator number 1 (V1)

$$P = \frac{V_i}{n} \times 100\%$$

$$P = \frac{40}{50} \times 100\%$$

$$P = 80\%$$

Percentage of assessments from the 2nd teacher on indicator number 1 (V1)

$$P = \frac{V_i}{n} \times 100\%$$

$$P = \frac{42}{50} \times 100\%$$

$$P = 84\%$$

Teachers 1 and 2's assessment of the material assesses whether the material contains accurate information. Examine the facts, concepts, and theories presented in the material. The teacher checks the suitability of the material with the set learning objectives. The material must support the achievement of the learning objectives that have been designed. The material must be appropriate to the knowledge level, age, and needs of the target group. The teacher ensures that the material is

understood and relevant to the target students. The teacher checks the consistent level of material in conveying information and completeness in fulfilling learning objectives. The teacher checks that the content of the material is relevant to the topic or subject being discussed. A detailed view of the material can be seen in Figure 3.

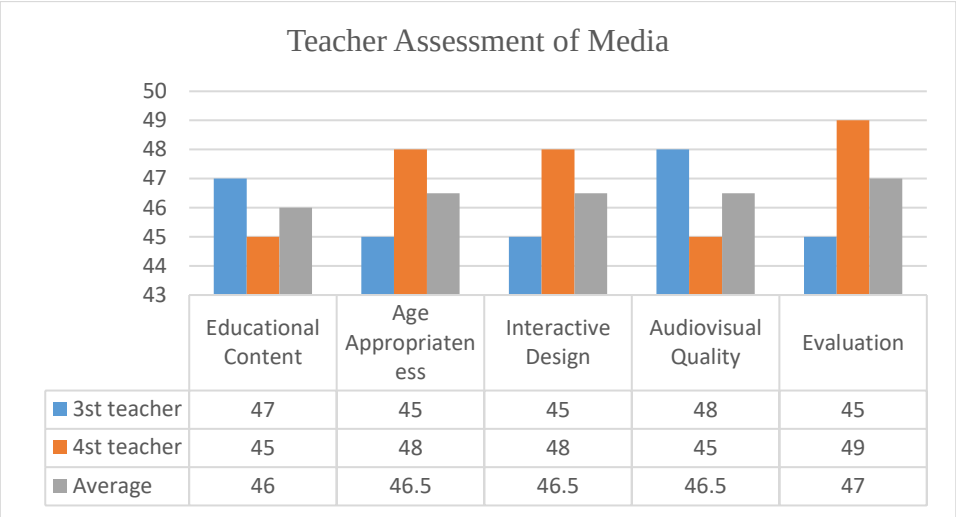
Teacher responses to material in educational game applications have an important role in ensuring the quality and accuracy of the content. They are tasked with verifying the material contained in the application by applicable curriculum standards or reference sources. Ensure that the material is appropriate for the cognitive development and age of the target user. Teachers help avoid the spread of false or inaccurate information so that educational game applications are relied on as trusted learning sources and support students' educational development positively.

The results of this research found that teachers' responses to educational game applications were influenced by the level of training received. It is important to provide adequate training to teachers and listen to feedback to optimize the use of educational game applications in learning contexts. In connection with relevant research by Wasgito (2014) states that teachers' assessments of material are selected based on individuals who have in-depth knowledge. The teacher is tasked with assessing or reviewing various aspects of the material contained in the educational game "TISTER".

The aspects assessed by teachers regarding the material vary depending on the context. In general, it covers five aspects (material content, suitability of learning objectives, suitability of targets, completeness, and relevance of content) (Nopiani et al., 2021). This aspect was validated by two teachers. The maximum number of marks given by each teacher for each indicator is 50.

The teacher's response to the material in educational games is carried out by providing an assessment of five performance indicators (V1-V5). The 1st teacher gave varying assessment percentages, ranging from 80% to 86%, with details of the scores that can be seen in Figure 4. The 2nd teacher gave varying responses, the assessment ranged from 80% to 88%, with specific indicator values being 84%, 80%, 82%, 80%, and 88%. The average percentage of teacher 1's response assessment for all indicators was 82%, while teacher 2 gave an average of around 83%. This analysis provides an overview of the teacher's views on the material to see the quality of educational games. Differences in responses between teachers provide valuable insights for further development and improvement. Steps in designing educational games that are more effective and responsive to user needs.

Results of the percentage of responses from teachers to media in educational games. The third teacher's response to indicators 1-5 (V1-V5), namely 94%, 90%, 90%, 96% and 90%. The percentage of assessments from the 4th teacher on indicators 1-5 (V1-V5), namely 90%, 96%, 96%, 90%, and 98%. It can be seen from the assessment process by two teachers regarding the media contained in the "TISTER" game application. The indicators looked at related to educational content, age appropriateness, interactive design, audiovisual quality, and evaluation. Researchers implemented the formula that has been described to calculate the percentage of assessments for each teacher.



	Educational Content	Age Appropriateness	Interactive Design	Audiovisual Quality	Evaluation
3st teacher	47	45	45	48	45
4st teacher	45	48	48	45	49
Average	46	46.5	46.5	46.5	47

Figure 5
Teacher Assessment of Media

Percentage of assessments from 3rd teachers on indicator 1 (V_1)

$$P = \frac{V_i}{n} \times 100\%$$

$$P = \frac{47}{50} \times 100\%$$

$$P = 94\%$$

Percentage of assessments from 4th teachers on indicator 1 (V_1)

$$P = \frac{V_i}{n} \times 100\%$$

$$P = \frac{45}{50} \times 100\%$$

$$P = 90\%$$

Teachers' responses to educational game media contain assessment indicators (educational content, age suitability, interactive design, audiovisual quality, and evaluation) (Nopiani et al., 2021). This aspect was validated by 2 teachers regarding media. First, evaluate the extent to which the game supports the learning of class VIII students. It includes relevant educational materials (Indonesian language subjects advertising texts, slogans, and posters). Second, assess the suitability of the educational game "TISTER" with the target age. Every educational game must be adapted to the cognitive and emotional development of students at a certain age level.

Third, the game design aspects (user interface, navigation, and interactivity) ensure that the game is easy to understand and interesting for class VIII students. Fourth, the quality of graphics, animation, and sound in games is assessed to ensure an engaging and motivating gaming experience. Fifth, educational games with evaluation elements to monitor the learning progress of class VIII students. Teachers assess whether this measurement system is effective and appropriate.

There are two main things studied in this research regarding teacher responses. First, the teacher's response to the educational game material (content of the material, suitability of learning objectives, suitability of targets, completeness and relevance of the content). Second, the teacher's response to educational game media contains assessment indicators (educational content, age suitability, interactive design, audiovisual quality, and evaluation). In connection with research by Budiarti & Riwanto (2021) and Y. Artanti et al., (2022), this research decision is very relevant in detailing the contribution of each indicator to the overall research. Therefore, the percentage results of each teacher's assessment become a critical basis for improvement and development to achieve the expected quality standards. The difference in assessment percentages between the two teachers reflects variations in the interpretation of the qualitative or quantitative aspects being evaluated.

Teacher evaluation of media to see the quality of educational games. Two teachers provide assessments of five performance indicators (V1-V5). The 3rd teacher gave an assessment percentage of 94%, 90%, 90%, 96%, and 90% for indicators 1 to 5 respectively. The 4th teacher gave varying assessments, ranging from 90% to 98%, with specific indicator values being 90%, 96%, 96%, 90%, and 98%. The average percentage of the 3rd teacher's assessment for all indicators was around 92%, while the 4th teacher gave an average of around 94%. This reflects that the educational game received positive appreciation from both teachers in terms of the media, with an assessment that exceeded the 90% threshold. Teachers' engagement with media in assessing aspects such as visual design, sustainability of content, and effectiveness of educational messages provides valuable insight into the user experience and the potential of games to engage and educate their target audience. Positive evaluations from media teachers indicate that these aspects have been successfully implemented in this educational game, providing a strong basis for further development and improving the quality of the media.

This implication is consistent with research (Latifah & Damayanti, 2022; Nopiani et al., 2021) research results show that teachers' responses to educational game media also play an important role in determining the quality of the game. Evaluation was carried out on five indicators (educational content, age appropriateness, interactive design, audiovisual quality, and evaluation). Teachers' positive evaluation of the media shows that the educational game "TISTER" successfully meets the expected quality standards and provides a strong basis for further development. This research underlines the importance of adequate training for teachers and educational game developers to ensure that the materials and media presented are appropriate to learning and user needs. Differences in teacher responses also provide valuable insights for further development in the design of more effective and responsive educational games.

CONCLUSION

Based on the results of the research and discussion, it was concluded that teachers and students responded to educational games based on the Fisher-Yates Shuffle algorithm in learning advertising texts, slogans, and posters. This research has significant implications for the development of science, especially related to the implementation of educational game-based learning. Through a case study approach, this research succeeded in showing that educational games based on Macromedia Flash with the Fisher-Yates Shuffle algorithm can be implemented effectively. This is clear evidence that the implementation of learning using educational games has a positive impact that can improve the quality of learning. The results of this research can be used as a reference in increasing the effectiveness of using educational games based on Macromedia Flash and the Fisher-Yates Shuffle algorithm.

The implementation of these educational games also proves their effectiveness in increasing student activity, as reflected in the increase in the progress percentage of 87%. This success confirms that the use of technology in learning can have a significant positive impact on the level of student involvement in the learning process. Questionnaire analysis of indicators of student learning independence shows satisfactory results, including aspects of fun, involvement, relevance, ease of use, graphic and audio quality, progress in learning, feedback, and platform suitability. This shows that multimedia-based educational games can stimulate students' interest and participation, as well as support the development of their learning independence.

DECLARATIONS

Author contribution	:	Ermira Nilansari Putri leads and is responsible for all research projects on teacher and student responses to educational games. He also wrote the script and collaborated with the second, third, and fourth writers. Laili Etika Rahmawati, Main Sufanti, and Hafiza Sana Mansoor participated in data collection in the field, interviews with teachers, transcription, and analysis. The four authors also revised the manuscript. All four authors approved the final manuscript.

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REFERENCE

Agustin, E. C., Kusumajanto, D. D., Wahyudi, H. D., & Hidayat, R. (2021). Pengembangan E-Modul Berbantuan Aplikasi Flip Builder pada Mata Pelajaran Marketing (Studi Pada Kelas X Bisnis Daring dan Pemasaran SMKN 1 Turen). *Jurnal Ekonomi, Bisnis dan Pendidikan*, *1*(5), 470–478. https://doi.org/10.17977/um066v1i52021p470-478

Aliyah, V. N., Chamalah, E., & Arsanti, M. (2018). Keterampilan Menulis Poster dengan Model Pembelajaran Kontekstual dan Media Gambar Bertema Iklan Layanan Masyarakat. *KEMBARA: Jurnal Keilmuan Bahasa, Sastra, dan Pengajarannya*, *4*(1), 94–106. https://doi.org/10.22219/kembara.v4i1.5484

Andayani, R. (2021). Google Meet Meningkatkan Belajar Kelas 8 Materi Teks Iklan Slogan dan Poster Siswa SMP Negeri 52 Surabaya. *Syntax Idea*, *3*(11), 2490–2504. https://doi.org/10.46799/syntax-idea.v3i11.1574

Anita, A., & Astuti, S. I. (2022). Digitalisasi dan Ketimpangan Pendidikan: Studi Kasus terhadap Guru Sekolah Dasar di Kecamatan Baraka. *Jurnal Pendidikan dan Kebudayaan*, *7*(1), 1–12. https://doi.org/10.24832/jpnk.v7i1.2509

Artanti, Y., Nuryadi, N., & Marhaeni, N. H. (2022). Respon Siswa terhadap Aplikasi Tepytha sebagai Media Pembelajaran Interaktif Berbasis Android. *Laplace : Jurnal Pendidikan Matematika*, *5*(1), 50–60. https://doi.org/10.31537/laplace.v5i1.671

Bella, A. D. A. M., Yuliana, J. N., & Wulandari, S. R. (2021). Media Poster pada Materi Teks Iklan, Slogan, dan Poster Kelas VIII Bahasa Indonesia. *Jurnal Genre: Bahasa, Sastra, dan Pembelajarannya*, *3*(1), 18–23. https://doi.org/10.26555/jg.v3i1.2866

Budiarti, W. N., & Riwanto, M. A. (2021). Pengembangan Modul Elektronik (E Modul) Keterampilan Berbahasa dan Sastra Indonesia SD untuk Meningkatkan Keterampilan Menyimak Mahasiswa PGSD. *Elementary School 8*, *8*(1), 97 – 104.

Chen, Y. F., Luo, Y. Z., Fang, X., & Shieh, C. J. (2018). Effects of the Application of Computer Multimedia Teaching to Automobile Vocational Education on Students' Learning Satisfaction and Learning Outcome. *Eurasia: Journal of Mathematics, Science and Technology Education*, *14*(7), 3293–3300. https://doi.org/10.29333/ejmste/91245

Damayanti, F. G., Rahmawati, L. E., Prayitno, H. J., & Sulistyono, Y. (2023). Implicit Functions in Digital Comic Strip Discourse and its Implications in Learning Anecdotal Texts of Indonesian Subjects in High School. *Advances in Social Science, Education, and Humanities Research*, *757,* 761–778. https://doi.org/10.2991/978-2-38476-086-2_66

Dipani, M. A. (2023). Inovasi Metode Pembelajaran Menggunakan Game-Based Learning (GBL) untuk Memotivasi Pelajar. *SAINTEK: Sains dan Teknologi*, *2*(1), 197–204.

Farhan, M., Ijlal, M., Aditama, D., & Chotijah, U. (2022). Color Recognition Educational Game Using Fisher-Yates for Early Childhood Potential Development. *Jurnal Inovtek Polbeng - Seri Informatika*, *7*(2), 279–289. https://doi.org/10.35314/isi.v7i2.2866

Handican, R., Darwata, S. R., Arnawa, I. M., Fuazan, A., & Asmar, A. (2023). Pemanfaatan Game Edukatif dalam Pembelajaran Matematika: Bagaimana Persepsi Siswa? *RANGE: Jurnal*

Pendidikan Matematika, *5*(1), 77–92. https://doi.org/10.32938/jpm.v5i1.4691

Hidayatullah, M. J., & Haryadi, H. (2018). Efektivitas Media Permainan Simulasi dan Media Gambar Peristiwa terhadap Prestasi Belajar Materi Teks Diskusi. *Diksi*, *26*(1), 29–39. https://doi.org/10.21831/diksi.v26i1.16013

Ida Kholida, S., Suprianto, & Ketut Mahardika, I. (2020). Development of Work Sheet Students in Guided Inquiry Based on the Game Education Using Macromedia Flash. *Journal of Physics: Conference Series*, *1569*(2), 1–8. https://doi.org/10.1088/1742-6596/1569/2/022006

Inderasari, E., Arum Hapsari, D., Yufarlina Rosita, F., & Ulya, C. (2021). Analysis of The Language Use Style in Public Service Advertisement "Being Wise In Social Media" on Radios in Surakarta. *KEMBARA: Jurnal Keilmuan Bahasa, Sastra, dan Pengajarannya*, *7*(2), 508–528. https://doi.org/10.22219/kembara.v7i2.17893

Irfan, M., Ramdhania, D. R., Nita, I. S., Priatna, T., & Atmadja, A. R. (2020). Design and Build an Early Childhood Puzzle Educational Game Using the Fisher-Yates Shuffle Algorithm as an Android-Based Scrambler For Snippets. *Proceedings - 2020 6th International Conference on Wireless and Telematics, ICWT 2020*, *58*(December), 1–6.

Kartini, K. S., & Putra, I. N. T. A. (2020). Respon Siswa terhadap Pengembangan Media Pembelajaran Interaktif Berbasis Android. *Jurnal Pendidikan Kimia Indonesia*, *4*(1), 12–19. https://doi.org/10.23887/jpk.v4i1.24981

Khusna, W. L., & Hardjatno, N. J. M. T. (2022). The Ideational Meaning of Covid-19 Health Promotion Posters: Multimodal Discourse. *Diksi*, *30*(1), 57–65. https://doi.org/10.21831/diksi.v30i1.47248

Kotiash, I., Shevchuk, I., Borysonok, M., Matviienko, I., Popov, M., Terekhov, V., & Kuchai, O. (2022). Possibilities of Using Multimedia Technologies In Education. *IJCSNS: International Journal of Computer Science and Network Security*, *22*(6), 727–732. https://doi.org/10.22937/IJCSNS.2022.22.6.91

Latifah, U., Busri, H., & Badrih, M. (2023). The Aesthetic Rhetoric of The Language of Online Advertising in Ramadan 2022: A Functional Study of The Prague School. *KEMBARA: Jurnal Keilmuan Bahasa, Sastra, dan Pengajarannya*, *9*(1), 285–299. https://doi.org/10.22219/kembara.v9i1.22546

Latifah, U., & Damayanti, M. I. (2022). Pengembangan Alat Evaluasi Pembelajaran Menggunakan Platform Wordwall.Net untuk Siswa Kelas II Sekolah Dasar. *JPGSD: Jurnal PGSD*, *10*(6), 1415–1424.

Mana, L. H. A. (2021). Respon Siswa terhadap Aplikasi Tiktok sebagai Media Pembelajaran Bahasa Indonesia. *JIRA: Jurnal Inovasi dan Riset Akademik*, *2*(4), 418–429. https://doi.org/10.47387/jira.v2i4.107

Marhaeni, N. H., Melvinasari, M., & Amirin, I. (2023). Respons Siswa SMK terhadap Media Pembelajaran Berbantuan Software MIT App Inventor 2 pada Materi Logika Matematika. *Journal on Education*, *5*(2), 2297–2304. https://doi.org/10.31004/joe.v5i2.884

Marisda, D. H., Handayani, Y., & Rahmawati, R. (2020). The Combination of Interactive Conceptual Learning Models And Multimedia Interactive to Minimize Misconceptions on The Science Content. *Journal of Physics: Conference Series*, *1572*(1), 1–7. https://doi.org/10.1088/1742-6596/1572/1/012069

Martinez-Alier, J. (2021). Mapping Ecological Distribution Conflicts: The Ejatlas. *Extractive Industries and Society*, *8*(4), 1–16. https://doi.org/10.1016/j.exis.2021.02.003

Mega, R., Mirandani, M., & Indihadi, D. (2022). Keterampilan Menulis Slogan Berbasis Pengalaman Membaca Teks Narasi Peserta Didik SD Kelas V. *Edu Cendikia: Jurnal Ilmiah Kependidikan*, *2*(2), 267–274.

Montiel-Ruiz, F. J., Sánchez-Vera, M. D. M., & Solano-Fernández, I. M. (2023). Social Networks and Gamification in Physical Education: A Case Study. *Contemporary Educational Technology*, *15*(1), 1–15. https://doi.org/10.30935/cedtech/12660

Muji, A. P., Ambiyar, A., Aziz, I., & Hidayat, H. (2021). The Implementation of Quizizz-Based Online

Evaluation in Higher Education: An Exciting Alternative For Evaluation. *International Journal of Research in Counseling and Education*, *5*(2), 149–157. https://doi.org/10.24036/00478za0002

Nasher, F., & Ferdiansyah, M. I. (2021). Game Edukasi Mengenal Huruf Hijaiyah untuk Anak Usia Dini Berbasis Mobile (Studi Kasus: DTA Nurul Muttaqien). *MJI: Media Jurnal Informatika*, *13*(2), 92–100. https://doi.org/10.35194/mji.v13i2.1917

Nopiani, R., Made Suarjana, I., & Sumantri, M. (2021). Emodul Interaktif pada Pembelajaran Tematik Tema 6 Subtema 2 Hebatnya Cita-Citaku. *MIMBAR PGSD Undiksha*, *9*(2), 276-289. https://doi.org/10.23887/jjpgsd.v9i2.36058

Nurhayati, E. (2020). Meningkatkan Keaktifan Siswa dalam Pembelajaran Daring Melalui Media Game Edukasi Quiziz pada Masa Pencegahan Penyebaran Covid-19. *Jurnal Paedagogy: Jurnal Penelitian dan Pengembangan Pendidikan*, *7*(3), 145–150. https://doi.org/10.33394/jp.v7i3.2645

Papautsky, E. L., Crandall, B., Grome, A., & Greenberg, J. M. (2015). A Case Study of Source Triangulation: Using Artifacts as Knowledge Elicitation Tools in Healthcare Space Design. *Journal of Cognitive Engineering and Decision Making*, *9*(4), 347–358. https://doi.org/10.1177/1555343415613720

Prasetyo, A. D., & Abduh, M. (2021). Peningkatan Keaktifan Belajar Siswa Melalui Model Discovery Learning di Sekolah Dasar. *Jurnal Basicedu: Research & Learning in Elementary Education*, *5*(4), 1717–1724. https://doi.org/10.31004/basicedu.v5i4.991

Purbawati, C., Rahmawati, L. E., Hidayah, L. N., & Wardani, L. S. P. (2020). Tingkat Partisipasi Siswa Sekolah Menengah Pertama dalam Pembelajaran Daring di Masa Pandemi Covid-19. *Refleksi Edukatika: Jurnal Ilmiah Kependidikan*, *11*(1), 102–108. https://doi.org/10.24176/re.v11i1.4919

Putikadyanto, A. P. A., Rahmawati, F., & Setiadi, A. (2022). The Acknowledgments in Student Theses: Eastern and Western Ideology. *OKARA: Jurnal Bahasa dan Sastra*, *16*(2), 245–265. https://doi.org/10.19105/ojbs.v16i2.5999

Rahayu, S. P. (2015). Analisis Wacana Iklan Perawatan Kulit Wajah pada Majalah Femme Actuelle (Pendekatan Mikrostruktural dan Makrostruktural). *Diksi*, *23*(1), 67–76. https://doi.org/10.21831/diksi.v23i1.6626

Rahmiati, R., Melyanti, R., Suryani, D., & Ambiyar, A. (2021). Mobile Game Education About Using Capitals Hiragana and Katakana Fisher-Yates Shuffle Algorithm and Fuzzy Tsukamoto. *IJMH: International Journal of Management and Humanities*, *5*(9), 30–34.

Revano, T. F., Garcia, M. B., Habal, B. G. M., Contreras, J. O., & Enriquez, J. B. R. (2019). Logical Guessing Riddle Mobile Gaming Application Utilizing Fisher-Yates Algorithm. *IEEE 10th International Conference on Humanoid, Nanotechnology, Information Technology, Communication and Control, Environment and Management, HNICEM 2018*, *March*(14), 1–4.

Riangsari, A., & Sufanti, M. (2013). Jenis dan Tema Teks dalam Buku Siswa Bahasa Indonesia Ekspresi Diri dan Akademik SMA Kelas X Serta Relevansinya dengan Kompetensi Kurikulum 2013. *Kajian Linguistik dan Sastra*, *27*(1), 15–27.

Sabrina, A., Iskandarsyah Siregar, S., & Sosrohadi, S. (2021). Lingual Dominance and Symbolic Power in the Discourse of Using the Pedulilindungi Application as a Digital Payment Tool. *IJLS: International Journal of Linguistics Studies*, *1*(1), 52–59. https://doi.org/10.32996/ijls.2021.1.2.8

Sadzili, M. H., Adham, M. J. I., & Triyadi, S. (2021). Analisis Gaya Bahasa dan Pola Sintaksis pada Slogan Iklan Makanan di Televisi. *Jurnal Educatio FKIP UNMA*, *7*(3), 1289–1297. https://doi.org/10.31949/educatio.v7i3.1456

Setiawan, T., Nur Hasanah, F., & Nasrudin, F. W. (2021). Penggunaan Chromebook Bermuatan Game Edukasi untuk Meningkatkan Aktivitas dan Prestasi Belajar Matematika Siswa SD di Kabupaten Boyolali. *Indonesian Journal of Islamic Elementary Education*, *1*(1), 75–86. https://doi.org/10.28918/ijiee.v1i1.3921

Shute, V., Rahimi, S., Smith, G., Ke, F., Almond, R., Dai, C.-P., Kamikabeya, R., Liu, Z., Yang, X., & Sun, C. (2021). Maximizing Learning Without Sacrificing the Fun: Stealth Assessment, Adaptivity and Learning Supports In Educational Games. *Journal of Computer Assisted Learning*,

37(1), 127–141. https://doi.org/10.1111/jcal.12473

Sukarno, S., Nurdianto, A., & Setiari, A. D. (2021). Strategi dan Teknik Persuasi Perekrutan Calon Anggota Baru (Studi Kasus Kebahasaan pada Bisnis Multi Level Marketing Bodong). *KEMBARA: Jurnal Keilmuan Bahasa, Sastra, dan Pengajarannya*, *7*(2), 406–423. https://doi.org/10.22219/kembara.v7i2.17202

Supriharyanti, D., Usodo, B., & Slamet, I. (2020). Effectiveness of Macromedia Flash Digital Module. *Journal of Physics: Conference Series*, *1469*(1), 1–7. https://doi.org/10.1088/1742-6596/1469/1/012083

Suryana, O. A., Supriadi, K. I., & Kasmui, K. (2018). Desain Media Permainan Edukasi Berorientasi Chemo-Edutainment pada Pembelajaran Kimia SMA. *CIE: Chemistry in Education*, *7*(2), 46–53.

Wasgito, M. A., & Setiadarma, W. (2014). Pengembangan Media Permainan Edukatif Teka-Teki Silang (TTS) dalam Proses Pembelajaran Siswa Kelas VII SMP Negeri 2 Kalianget. *Jurnal Pendidikan Seni Rupa*, *2*(3), 36–43.

Wayan Mertha, I., & Mahfud, M. (2022). History Learning Based on Wordwall Applications to Improve Student Learning Results Class X IPS in MA As'Adiyah Ketapang. *IJERLAS: International Journal of Educational Review, Law And Social Sciences*, *2*(5), 507–612. https://doi.org/10.54443/ijerlas.v2i5.369

Widodo, A. Y. P., Yennita, Y., Azhar, A., & Islami, N. (2019). Development of physics learning media on rotational materials based on interactive multimedia. *Journal of Physics: Conference Series*, *1351*(1). https://doi.org/10.1088/1742-6596/1351/1/012057

Yulika, N. L. E. C., Budiarta, I. W., & Susanthi, I. G. A. A. D. (2022). Analisis Makna, Pesan, dan Retorika dalam Iklan Kitabisa.com. *KEMBARA: Jurnal Keilmuan Bahasa, Sastra, dan Pengajarannya*, *8*(2), 472–491. https://doi.org/10.22219/kembara.v8i2.21340