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Analysis of Responses to the Use of Kahoot! Interactive Quiz in High School Students on Black Basic Materials

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ABSTRACT

Objective: *This study aims to analyze student responses after using the Kahoot interactive quiz on the black principle material.* ***Method:*** *The study was conducted in class XI-2 of Dr. Soetomo Surabaya odd semester of the 2024/2025 academic year. This study uses qualitative descriptive research.* ***Result:*** *The results showed that students responded positively to the use of the Kahoot interactive quiz in learning the black basic materials. Most students felt more enthusiastic, engaged, and motivated during the learning process. They reported that the quiz format helped them better understand the concepts, and the immediate feedback feature allowed them to correct misconceptions quickly. In addition, the competitive yet fun atmosphere increased participation and focus during lessons.* ***Novelty:*** *The Kahoot application presents interesting animations, colors, and sounds, so that learning is not monotonous. Students can find out the ranking after all questions are answered. The development of technology is an opportunity to develop interactive learning media. Therefore, educators are required to provide learning media that make it easier for students to understand the material presented.*

INTRODUCTION

The curriculum is an essential element in the educational process at various levels of education in Indonesia. The Merdeka Curriculum promotes autonomy and places students, teachers, and schools in strategic positions to choose the most effective learning methods. It emphasizes creativity and free thinking as the core of the Merdeka Belajar initiative launched by the Ministry of Education and Culture, including the initiation of the Sekolah Penggerak program, which aims to support each school in creating a generation that can continuously adapt and possesses the identity of Pelajar Pancasila (Warsidah et al., 2022).

Therefore, implementing a curriculum that focuses on character development is essential. Effective character education must cover three main aspects, namely moral knowledge, moral feeling, and moral action, as explained by Pratama and Widodo (2019). The Pelajar Pancasila profile aims to realize the vision of Indonesian education reform (Rahayu et al., 2022). Its existence encourages schools to implement more contextual and participatory curriculum development. The Merdeka Curriculum learning policy requires teachers to develop both the curriculum and teaching methods. In the current learning era, the role of teachers is not limited to being information providers but also as facilitators who must possess personal, social, professional, and pedagogical competencies, in accordance with Article 10 Paragraph (1) of Law Number 14 of 2005 concerning Teachers and Lecturers.

Physics plays an important role in providing students with an understanding of natural science. With the development of education and innovative approaches in

physics learning, it is expected that each student can develop their potential to adapt to various changes. This study is expected to provide a broader overview of how the internalization of physics learning and differentiation approaches are applied in classroom instruction.

The development of science and technology is progressing rapidly, significantly impacting various aspects of daily life, including education. The integration of technology in education makes interactions between educators and students more communicative and engaging, thereby preventing monotonous learning and fostering two-way feedback (Puteri et al., 2023). Various forms of information can now be accessed easily and practically through the internet. Educators can use the internet to provide material explanations during teaching and learning activities. Its accessibility makes it a practical learning medium to support educational development.

Interactive learning media serve as a motivational tool to enhance student comprehension. Although teachers and students may be physically present in the same classroom, students are often uninterested in the material being presented. This is often due to monotonous instruction and a lack of effective feedback between teachers and students. When material is delivered solely through verbal explanation, some students struggle to absorb the content, perceiving it as unengaging. Therefore, learning media that foster interaction and engagement are necessary to ensure effective and optimal learning. Optimal learning enables the achievement of learning objectives.

Educators can utilize various online applications as learning media to help achieve these objectives. One such engaging and easily accessible application is Kahoot. Kahoot can be used as an interactive quiz platform supported by laptops or mobile phones connected to the internet (Idiawati et al., 2024). Its use in learning activities creates a more interactive environment and helps attract students' interest in understanding the material being taught.

RESEARCH METHOD

The purpose of this study was to analyze student responses after using the interactive quiz learning media Kahoot on the basic black material. The data collection technique used was a questionnaire of student responses after using the interactive quiz learning media Kahoot. The results obtained were then analyzed using qualitative descriptive methods, which, later on, allowed for detailed descriptions that support the evidence of the findings. This study was conducted during the odd semester of 2024/2025 in class XI-2 SMA Dr. Soetomo Surabaya on November 18, 2024. The flow of this research is research planning, data collection by distributing questions in Kahoot! to students, distributing student response questionnaires after trying to use the interactive Kahoot quiz learning media on the basic black material, data interpretation, and reporting research results, in the context of the research presented in the form of a short narrative. The visual and narrative presentation of data facilitates understanding and helps plan the next research steps based on the obtained understanding.

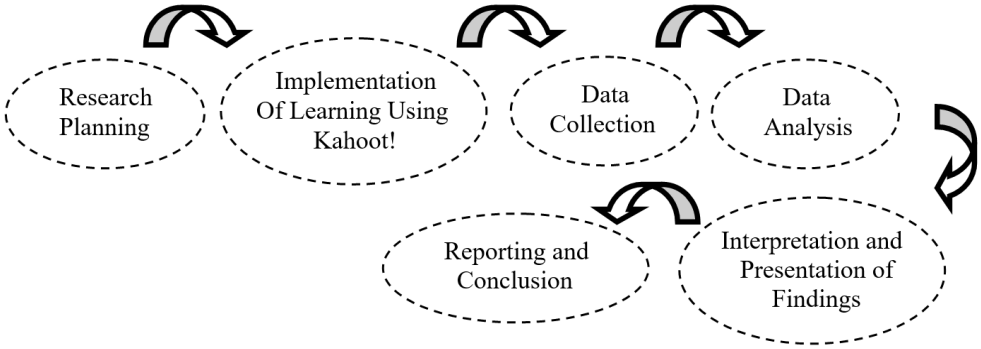

Figure 1. The flow of data analysis

Based on Figure 1, the data collected were then analyzed using qualitative descriptive methods. The findings were presented in narrative and visual formats to enhance understanding and guide future research directions.

RESULTS AND DISCUSSION

Result

In learning the basic black material using the interactive quiz media Kahoot at SMA Dr. Soetomo Surabaya, students used the application effectively and enthusiastically. During the session, questions created by the teacher were displayed directly on students' devices, accompanied by sound effects and customizable profile features, enhancing engagement. Each question was timed (120 seconds), and students' answers were compiled and displayed on the teacher's screen. The platform showcased class rankings based on correct and quick responses, creating a competitive and motivating atmosphere.

Before working on the questions, students can choose what animation to use for their profile and can write a name on the profile. The questions created can be in the form of writing, numbers, and supporting images. 1 question has 4 answer options symbolized by a red triangle, an orange circle, a blue rhombus, and a green square. The teacher can set the time and answer key for each question as in Figure 2.

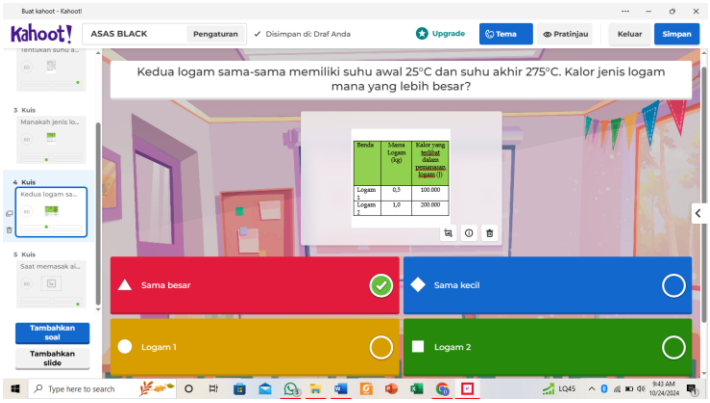

Figure 2. Teacher view when creating questions.

After that, students could find out the results of the 3 best rankings in that 1 class as in Figure 3.

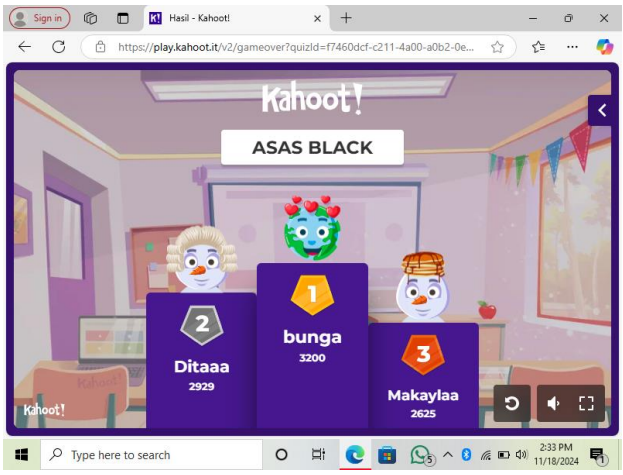

Figure 3. Results of the top 3 rankings in 1 class.

The results displayed in the ranking are the top three in the 1 class who get the highest points. Points are obtained more if students answer the questions correctly and quickly. The faster students answer the questions correctly, the more points they get. For students who answer questions correctly in a row, their points will increase drastically. By seeing the points that appear, students are more interested in working on them repeatedly.

The interactive quiz media Kahoot, in learning the black principle, received an excellent response from students. This is proven by the results of the analysis of the response questionnaire distributed to students after trying to use the interactive quiz Kahoot. The response questionnaire distributed to students consisted of 10 statements, consisting of 5 positive statements and five negative statements, with the percentage results of each statement as in Figure 4.

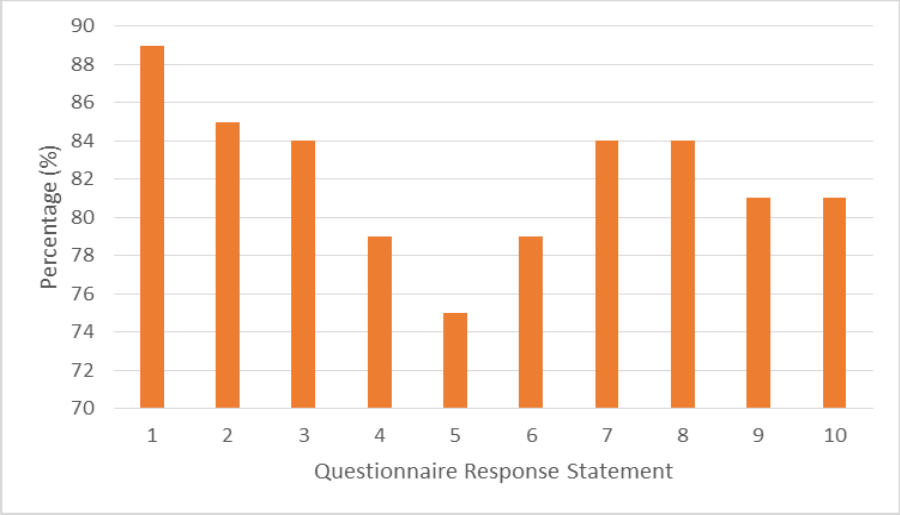

Figure 4. Percentage of student responses.

In Figure 4, the results of student responses to statement 1 were 89%, to statement 2 is 85%, to statement 3 is 84%, to statement 4 is 79%, to statement 5 is 75%, to statement 6 is 79%, to statement 7 is 84%, to statement 8 is 84%, to statement 9 is 81%, and to statement 10 is 81%. The statements that received responses with perfect criteria were statements 1, 2, 3, 7, 8, 9, and 10. Statement 1 is the opposite of the statement that learning with the Kahoot interactive quiz is boring. Many students responded that they strongly disagreed with the statement, so the result was that Kahoot learning was fun for them. Statement 2 is negative, as they were confused about whether the Black Principles quiz used Kahoot.

Many students responded that they strongly disagreed with the statement, so the result was that Kahoot learning was not confusing for them. Statement 3 is positive, as the menu presented caught my attention and motivated me to learn the Black Principles material. Many students responded that they strongly agreed. Statement 4 is a positive statement that the learning process with the Kahoot interactive quiz makes it easier to solve problems. Many students responded that they agreed. Statement 5 is a negative statement about the Kahoot interactive quiz, which makes it challenging to answer problems on the Black Principles material. Many students responded that they disagreed with the statement, so the result was that Kahoot learning was not confusing for them. Make it easier to answer the fundamental black material problems for them. Statement 6 is positive, and the sound of the Kahoot interactive quiz helps in analyzing the problem. Many students agreed with the statement.

Statement 7 is a positive statement that active learning increases when teachers use Kahoot interactive quizzes. Many students responded that they strongly agree with the statement. Statement 8 is negative, indicating that after this learning, they are unable to interpret the Black principle material. Many students responded that they strongly disagree with the statement, so the result is that after Kahoot learning, they can interpret the Black principle material. Statement 9 is negative, the statement that the use of Kahoot interactive quizzes does not help them become skilled in understanding the Black principle material.

Many students responded that they strongly disagree with the statement, so the result is that the use of Kahoot interactive quizzes helps them develop a deeper understanding of the Black principle material. Statement 10 is a positive statement that learning with Kahoot interactive quizzes helps to connect problems with the Black principle physics concept. Many students responded that they strongly agree with the statement. The following is a recapitulation of the percentage and category of each student's response to the questionnaire statement in Table 1.

Table 1. Recapitulation of percentages and categories of each statement of the student response questionnaire.

Total Points for each Statement	Maximum Points	Percentage (%)	Category
107		89	Very good

Total Points for each Statement	Maximum Points	Percentage (%)	Category
103	120	85	Good
101		84	
95		79	
90		75	
95		79	
101		84	Very good
101		84	
98		81	
98		81	

The analysis of student response questionnaires, consisting of 10 statements (5 positive and 5 negative), showed high levels of positive engagement. For example, 89% of students strongly disagreed with the negative statement that learning with Kahoot was boring, indicating they found it enjoyable.

Discussion

The data suggests that the use of Kahoot as an interactive quiz platform positively influenced students' learning experiences, particularly in the context of the black principle material. The engaging format—featuring sound effects, animations, immediate feedback, and a gamified environment—helped increase student motivation and focus. Students reported that the platform was not only fun but also enhanced their understanding of physics concepts. The design of Kahoot supported differentiated instruction by allowing teachers to adapt the number, type, and timing of questions. It also provided instant feedback, enabling students to reflect on their learning in real time.

The results indicate that digital tools like Kahoot can play a significant role in improving classroom dynamics and learning outcomes. This aligns with the goals of the Merdeka Curriculum, which emphasizes contextual, participatory, and engaging education models. Furthermore, the competitive element of the quiz contributed to increased student participation and collaboration. These findings highlight the potential of integrating digital platforms into science education to foster a more active and enjoyable learning environment. Future research could explore the long-term effects of such media on academic performance and critical thinking skills.

The use of digital media in physics learning is crucial because it can bridge abstract concepts that are often difficult for students to grasp into something more concrete, interactive, and engaging. Digital media provides a contextual learning experience, in line with 21st-century demands that emphasize technological literacy, critical thinking, and collaboration. By utilizing visualizations, simulations, and interactive platforms, students can more easily understand physics phenomena, increase their motivation to learn, and actively engage in the learning process, in line with the spirit of the Independent Curriculum, which emphasizes participation and meaningful learning.

Evaluations of the use of Kahoot indicate that this platform is effective in increasing student motivation, engagement, and understanding. However, it still has limitations, such as its focus on multiple-choice questions that do not support the development of higher-order thinking skills. Therefore, recommendations for further media development include integrating features that encourage exploration, discussion, and

open-ended problem-solving, such as simulation-based platforms, virtual experiments, or the integration of AI to provide adaptive feedback. Thus, digital media serves not only as a fun assessment tool but also as a means to develop critical, creative, and collaborative thinking skills in physics learning.

CONCLUSION

Fundamental Finding: The study found that students showed a strong positive response to the use of Kahoot interactive quizzes in learning the basic black material. They perceived the platform as engaging, fun, and motivating. It helped them better understand concepts, solve problems more easily, and connect physics concepts effectively. Additionally, the use of Kahoot contributed to improved academic performance in answering questions. **Implications:** These findings suggest that integrating interactive digital tools like Kahoot into classroom instruction can enhance student engagement and motivation. The ability to customize quizzes offers flexibility for teachers to adapt learning activities based on student needs, making it a practical tool for differentiated instruction in physics education. **Limitation:** This study was limited to a single classroom (class XI-2 at SMA Dr. Soetomo Surabaya) and focused on one topic (basic black material) within a single learning session. The short quiz (only five questions) and the limited duration of the intervention may not fully capture the long-term impact of Kahoot on learning outcomes or conceptual mastery. **Future Research:** Future studies could expand the scope by involving multiple classes or schools, increasing the variety and depth of quiz content, and assessing the long-term effects of Kahoot on student achievement, retention, and critical thinking. Additionally, future research could explore the effectiveness of Kahoot in other science subjects or compare it with other interactive learning tools.

AUTHOR CONTRIBUTIONS

Dea Ramadhana Zsa Zsa Alifah contributed to the conceptual framework, research design, and validation process; **Titin Sunarti** was involved in methodology development, and data analysis; **Oka Saputra** was sourcing references, and drafting the manuscript; **Budi Jatmiko** handled data management in methodology development and project coordination. All listed authors have reviewed and approved the final version of this submission.

CONFLICT OF INTEREST STATEMENT

No conflict interest.

ETHICAL COMPLIANCE STATEMENT

This manuscript complies with research and publication ethics. The authors affirm that the work is original, conducted with academic integrity, and free from any unethical practices, including plagiarism.

STATEMENT ON THE USE OF AI OR DIGITAL TOOLS IN WRITING

The authors acknowledge the use of digital tools, including AI-based technologies, as support in the research and writing stages of this article. Specifically, Grammerly for a writing aid that offers various advantages, especially in terms of improving the quality

and clarity of writing in English. All outputs generated with digital assistance were critically evaluated and revised to ensure academic rigor and ethical standards were upheld. The final responsibility for the manuscript rests entirely with the authors.

REFERENCES

Arends, R. I. (2012). *Learning to teach* (9th ed.). McGraw-Hill.

Arikunto, S. (2020). *Prosedur penelitian: Suatu pendekatan praktik*. Rineka Cipta.

Azizah, Z., Taqwa, M. R. A., & Assalam, I. T. (2020). Analisis pemahaman konsep fisika peserta didik menggunakan instrumen berbantukan Quizizz. *Edu Sains: Jurnal Pendidikan Sains dan Matematika, 8*(2), 1–11. https://doi.org/10.23971/eds.v8i2.1707

Febrianti, I. R., Subiki, S., & Supriadi, B. (2023). Pengaruh model pembelajaran problem based learning berbantuan E-LKPD terhadap aktivitas dan hasil belajar siswa SMA pokok bahasan besaran dan satuan. *Jurnal Pembelajaran Fisika, 12*(2), 41–46. https://doi.org/10.19184/jpf.v12i2.36079

Fikri, A. M. K., & Sudarti, S. (2022). Analisis deskriptif kemampuan berpikir tingkat tinggi (HOTS) siswa MA Unggulan Nurul Iman pokok bahasan suhu dan kalor dengan menggunakan Taksonomi Bloom. *Jurnal Pendidikan MIPA, 12*(2), 214–219. https://doi.org/10.37630/jpm.v12i2.581

Filsame, D. K. (2008). *Menguak rahasia berpikir kritis dan kreatif*. Prestasi Pustakarya.

Fu'adin, A., Bila, S., Saidah, Z. P., & Hidayat, Z. R. (2023). Potret penggunaan Google Form sebagai media evaluasi pembelajaran SMA Al-Falah Bandung. *Jurnal Pendidikan, Sains dan Teknologi, 2*(2), 274–287. https://doi.org/10.47233/jpst.v2i2.788

Giovany. (2017). *Ragam model penelitian dan pengolahannya dengan SPSS*. ANDI.

Milliniawati, S., & Isnaeni, W. (2023). Critical thinking ability, cognitive learning outcomes, and student learning activities in excretion system learning using PBL-based E-LKPD. *Journal of Biology Education, 12*(1), 43–52. http://journal.unnes.ac.id/sju/index.php/ujbe

Muchsin, M., Zakiah, Z., & Maqfirah, M. (2023). Pendekatan kontruktivisme dengan menggunakan model probing prompting terhadap keterampilan berpikir kritis siswa pada materi suhu dan kalor di SMA Negeri 1 Glumpang Tiga. *Education Enthusiast: Jurnal Pendidikan dan Keguruan, 3*(4), 41–51.

Oktarina, H., Setiawan, I., & Medriati, R. (2023). Pengembangan LKPD berorientasi pendekatan saintifik pada materi suhu dan kalor untuk melatihkan keterampilan berpikir kritis siswa SMA. *Amplitudo: Jurnal Ilmu dan Pembelajaran Fisika, 2*(2), 141–150. https://doi.org/10.33369/ajipf.2.2.141-150

Pereira, V. V., Samsudin, A., & Utama, J. A. (2023). Mengkaji keterampilan berpikir kritis siswa menggunakan model problem based learning berbantuan teknik probing prompting (PBL-PP). *Jurnal Muara Pendidikan, 8*(1), 170–179. https://doi.org/10.52060/mp.v8i1.1175

Pratama, O. A., & Widodo, H. (2019). Implementasi kurikulum Al-Islam, Kemuhammadiyahan dan Bahasa Arab dalam meningkatkan akhlak siswa di SMK Muhammadiyah Karangmojo. *Jurnal Khazanah Pendidikan, 3*(3), 123–124. https://doi.org/10.30595/jkp.v12i2.4293

Puteri, B. I. R., Makhrus, M., Hikmawati, & Sutrio. (2023). Pengaruh model problem based learning terhadap kemampuan berpikir kritis peserta didik pada materi suhu dan kalor [Unpublished thesis]. PPs Universitas Mataram.

Ramona, R., Oktavianty, E., & Sitompul, S. S. (2023). Peningkatan keterampilan berpikir kritis menggunakan model pembelajaran ABSI tentang kalor. *EDUKATIF: Jurnal Ilmu Pendidikan, 5*(1), 221–230. https://doi.org/10.31004/edukatif.v5i1.3928

Sandjojo, N. (2013). Uji validitas dan uji reliabilitas. Retrieved November 20, 2024, from http://jajaka-aja.blogspot.com/2013/07/uji-reliabilitas-dan-uji-validitas.html

Sugiyono. (2017). *Metode penelitian pendidikan: Pendekatan kuantitatif, kualitatif, dan R&D*. Alfabeta.

Sujalmo, C., Hayatina, L., & Amiroh, A. (2024). Implementasi model pembelajaran problem based learning untuk mengembangkan kemampuan berpikir kritis siswa pada pembelajaran akidah akhlak. *Intelektika: Jurnal Ilmilah Aquinas, 6*(1), 60–67. https://doi.org/10.59841/intellektika.v2i1.884

Warsidah, S., Satyahadewi, N., Amir, A., Linda, R., & Ashari, A. M. (2022). Implementasi pembelajaran berbasis kurikulum Merdeka pada peserta didik kelas 4 Sekolah Dasar Negeri No. 16 Pontianak Utara. *AR-RIAYAH: Jurnal Pendidikan Dasar, 6*(2), 233–246. https://doi.org/10.29240/jpd.v6i2.5519

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