Improving Learning Outcomes of High School Students through E-Magazine Learning Media Based on Qur'anic Values on Biodiversity Material

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Abstrak: Media pembelajaran berbasis nilai-nilai qur'ani berkontribusi signifikan terhadap hasil belajar siswa. Rendahnya hasil belajar siswa kelas X-3 SMA Negeri 5 Banda Aceh pada materi keanekaragaman hayati salah satunya disebabkan oleh belum terintegrasinya nilai-nilai qur'ani dalam proses pembelajaran. Implementasi bahan ajar berbasis nilai-nilai Islami dapat menghubungkan siswa dengan prinsip moral dan membentuk karakter siswa yang lebih baik, sehingga memperkuat integrasi antara ilmu pengetahuan dan agama. Penelitian ini bertujuan untuk meningkatkan hasil belajar siswa melalui media pembelajaran *e-magazine* berbasis nilai-nilai qur'ani. Rancangan penelitian yang digunakan adalah penelitian eksperimen kuantitatif dengan metode *pre-experiment*. Desain penelitian yang diterapkan adalah *One Group Pretest-Posttest Design*. Sampel dalam penelitian ini terdiri dari satu kelas, yaitu kelas X-3 yang berjumlah 30 siswa. Teknik pengambilan sampel dilakukan dengan menggunakan *purposive sampling*. Instrumen yang digunakan berupa soal tes yang berjumlah 20 soal dalam bentuk pilihan ganda. Data dianalisis menggunakan rumus N-gain. Hasil penelitian menunjukkan bahwa terdapat peningkatan hasil belajar siswa, dimana nilai rata-rata pretest adalah 30,19. Setelah diajarkan menggunakan media pembelajaran *e-magazine* berbasis nilai-nilai qur'ani, terdapat peningkatan, yaitu rata-rata posttest 80,19. Diperoleh nilai N-gain sebesar 0,72 dengan kategori High. Dapat disimpulkan bahwa penerapan media pembelajaran *e-magazine* berbasis nilai-nilai qur'ani pada materi keanekaragaman hayati meningkatkan hasil belajar siswa dengan kategori tinggi.

Keyword: *E-Magazine*; Nilai-nilai Qur'ani; Hasil Belajar; Keanekaragaman Hayati.

Abstract: Learning media based on qur'anic values significantly contribute to student outcomes. One reason for low learning outcomes in classes is that teaching materials rooted in Islamic values connect students with moral principles and shape their character, thereby strengthening the integration of science and religion. This research aims to improve student learning outcomes through e-magazine learning media based on qur'anic values. The research design is a quantitative experimental study with a pre-experimental method, specifically the One Group Pre-test-Post-test Design. The sample consists of one class, X-3, totalling 30 students, selected using purposive sampling. The instrument used is a test consisting of 20 multiple-choice questions. Data were analyzed using the N-gain formula. The results showed an increase in student learning outcomes, with an average pretest score of 30.19. After instruction with e-magazine learning media based on qur'anic values, the post-test average improved to 80.19. The N-gain value was 0.72, indicating a high level of improvement. It can be concluded that the application of e-magazine learning media based on qur'anic values in biodiversity material significantly enhances student learning outcomes.

Keyword: E-Magazine; Qur'anic Values; Learning Outcomes; Biodiversity Material.

1. Introduction

Education is a necessity for every human being to develop, ensuring they do not fall behind. The development of science, technology, and communication (IPTEK) has brought about significant changes to various dimensions of human life. Technology can be a powerful tool to transform learning. Therefore, educators have an important responsibility to prepare for the use of technology and monitor its impact on students during the learning process [1].

The use of learning media aims for students to interact, think critically, and not feel bored during the learning process, ensuring that the learning activities can be delivered effectively and align with learning objectives [2]. Learning media is a means or tool for conveying messages in the form of information from the source to the recipient [3]. The learning media used by educators, especially teachers, greatly influences students' motivation, interest, and learning outcomes [4]. Learning media is viewed as a means to achieve learning goals, as an assessment tool, and can enhance students' knowledge and

learning experiences in understanding the scientific values of the conducted learning [5].

Implementing innovative and creative learning media that meet students' needs to achieve learning objectives poses a challenge in education. Learning media is an essential element in the learning process, alongside teaching methods [6]. There are many choices of information technology-based learning media, including blogs, YouTube, Zoom, Moodle, e-magazines, and others. The use of information technology-based learning media can increase students' interest in participating in the learning process [7].

Learning materials linked to Qur'anic values and religion bring students closer to their faith, which contains many scientific values related to natural science, especially in biodiversity material. The truth from the perspective of the Qur'an is absolute truth that comes directly from Allah, leaving no room for doubt. Learning materials connected to Qur'anic values and religion make students closer to their faith, filled with many scientific values related to natural science, particularly in biodiversity material. The truth from the perspective of the Qur'an is absolute, directly from Allah, leaving no doubt.

Qur'anic values are characteristics that make them useful and desirable for humans, serving as a foundation for actions and forming better ethics by involving all potentials, such as the ability to think, act, practice, and propagate the teachings of the Qur'an, reflecting the morality taught within it. There is no perfect guide other than the Qur'an. Qur'anic values broadly encompass the values of truth (metaphysical and scientific) and moral values. These two Qur'anic values guide humans in developing their lives and livelihoods. The dynamic development of society due to advances in science and technology, especially information technology, makes the actualization of Qur'anic values crucial. Normatively, the objectives of actualizing Qur'anic values in education encompass three dimensions of life that education must nurture and develop.

Based on interviews with Biology teachers at SMA N 5 Banda Aceh, it was found that the learning of biodiversity material currently only covers theoretical discussions. The learning process is conducted through lectures, discussions, and practice. The teaching materials used are package books

containing clear explanations and images. However, the learning that connects Qur'anic values has yet to be received by students, so they are unaware of the Qur'anic verses related to the material studied. The learning outcomes of students in biodiversity material are still low, with average student outcomes below the minimum completion criteria, where the KKM (Minimum Completeness Criterion) for this material is 70.

Teaching media based on Qur'anic values aims to create a more meaningful learning process, connect students with moral principles of religion, enhance environmental awareness, and shape better student character. Through this media, students not only acquire academic knowledge but also deepen their understanding of religious values and how to implement them in daily life. This integration is expected to produce individuals who are not only intellectually smart but also possess good character and responsibility toward themselves, others, and their environment.

One solution to addressing the above issues is to implement Qur'anic value-based e-magazine learning media in biodiversity material in a practical and engaging format. E-magazines, or electronic magazines, are online publications that are no longer printed on paper but are presented as applications or files utilizing the internet. This research aims to improve student learning outcomes through Qur'anic value-based e-magazine learning media.

E-magazines not only contain materials but are also combined with Qur'anic verses related to biodiversity material to create teaching materials that can enhance student learning outcomes. The selection of Qur'anic value-based e-magazine teaching materials is a learning medium that can improve students' learning outcomes and expand their knowledge about the Qur'anic verses related to biodiversity material. The packaging of the e-magazine as a teaching material combines visual and digital elements through magazine teaching materials. This Qur'anic value-based e-magazine is expected to improve student learning outcomes due to its practical, engaging format and easy accessibility through smartphone technology.

2. Research Method

The research design used in this study is a type of quantitative experimental research with a Pre-Experiment method. The research design applied is the One Group Pretest-Post-test Design, which involves measuring a group or class using a pretest, providing a specific treatment, and then conducting a final measurement (post-test). This design can be illustrated in Table 1.

Table 1. Research Design [8]

Pre-Test	Treatment	Post-Test
O_1	X	O_2

Information:

O1: Pre-test score (before treatment)

X: Treatment

O2: Post-test score (after treatment)

This research will be conducted at SMA Negeri 5 Banda Aceh, JL. Hamzah Fansuri No. 3, Kopelma Darussalam, Syiah Kuala, Banda Aceh City, Aceh Province, Indonesia. The study will take place during the odd semester of the 2023-2024 academic year and has received approval from the school. The selection of SMA Negeri 5 Banda Aceh as the research location is based on a combination of factors relevant to the research objectives and focus, including the diversity of educational resources, student characteristics, school policies, and readiness to participate in the research. A school with good administrative support, as well as facilities and an environment conducive to research, will facilitate data collection and yield beneficial findings. Therefore, the selection of SMA Negeri 5 Banda Aceh should be based on the alignment between the research needs and the unique characteristics of the school.

The population consists of all objects subjected to the research. The population is a generalization area comprising objects/subjects with specific qualities and characteristics determined by the researcher for study and conclusion. In this study, the population includes all students in the X MIPA

class at SMA Negeri 5 Banda Aceh, which consists of classes X-1, X-2, X-3, X-4, X-5, X-6, X-7, X-8, and X-9. The sample in this study consists of one class, namely class X-3 at SMA Negeri 5 Banda Aceh, totalling 30 students. This class was chosen as the research object. The sampling technique used is purposive sampling, which is a non-random selection with specific objectives and targets. The researcher selects the class based on the teacher's assessment of students with lower daily test scores. Class X-3 was chosen because many students have not yet reached the KKM set.

The pre-test and post-test in this study use 20 multiple-choice questions given to students to obtain information about their mastery of the taught material. The pre-test and post-test results are analyzed using Microsoft Excel, and the improvement in student learning outcomes before and after learning can be measured using the N-Gain formula. The formula is as follows:

$$N - GAIN = \frac{Postest\ Score - Pretest\ Score}{Ideal\ Score - Pretest\ Score}$$

Table 2. N-Gain Value Interval [9]

N Gain Value Interval	Catagory
N – gain ≥ 0,70	High
0,30 ≤ N – gain < 0,70	Medium
N – gain ≤ 0,30	Low

3. Results and Discussion

a. Research Results

Based on the research conducted, it is known that the learning outcomes of class X-3 students at SMA Negeri 5 Banda Aceh after being taught with Qur'anic value-based e-magazine on biodiversity material show significant improvement. Data were obtained from pretest and posttest results, as shown in Table 3.

Table 3. Student Learning Outcomes Data

Student Code	Score Pretest	Score Postest	Gain (d)	d2	N-Gain	Category
X 1	15	70	55	3025	0.65	Medium
X 2	15	75	60	3600	0.71	High
X 3	30	80	50	2500	0.71	High
X 4	50	90	40	1600	0.80	High
X 5	40	90	50	2500	0.83	High
X 6	40	85	45	2025	0.75	High
X 7	30	80	50	2500	0.71	High
X 8	35	80	45	2025	0.69	Medium
X 9	20	75	55	3025	0.69	Medium
X 10	25	75	50	2500	0.67	Sedang
X 11	40	85	45	2025	0.75	High
X 12	30	80	50	2500	0.71	High
X 13	35	80	45	2025	0.69	Medium
X 14	30	80	50	2500	0.71	High
X 15	20	75	55	3025	0.69	Medium
X 16	30	80	50	2500	0.71	High
X 17	30	85	55	3025	0.79	High
X 18	40	85	45	2025	0.75	High
X 19	25	75	50	2500	0.67	Medium
X 20	40	90	50	2500	0.83	High
X 21	35	80	45	2025	0.69	Medium
X 22	25	75	50	2500	0.67	Medium
X 23	30	80	50	2500	0.71	High
X 24	20	75	55	3025	0.69	Medium
X 25	15	70	55	3025	0.65	Medium
X 26	40	90	50	2500	0.83	High
X 27	30	80	50	2500	0.71	High
$\sum$	815	2165	1350	68000	19.48	High
Avarage	30.19	80.19	50	2518.51852	0.72	High

Based on Table 3, it can be seen that before learning using Qur'anic value-based e-magazine media, all students scored below 70. This indicates that they have not achieved the Minimum Completeness Criteria (KKM). The average pre-test score obtained by students was 30.19, with the lowest score being 15 and the highest score being 50. After learning with this media, student learning outcomes improved, with all 27 students achieving the KKM. The average post-test score reached 80.19, with the lowest being 70 and the highest being 90. A comparison of learning outcomes can be seen in Figure 1.
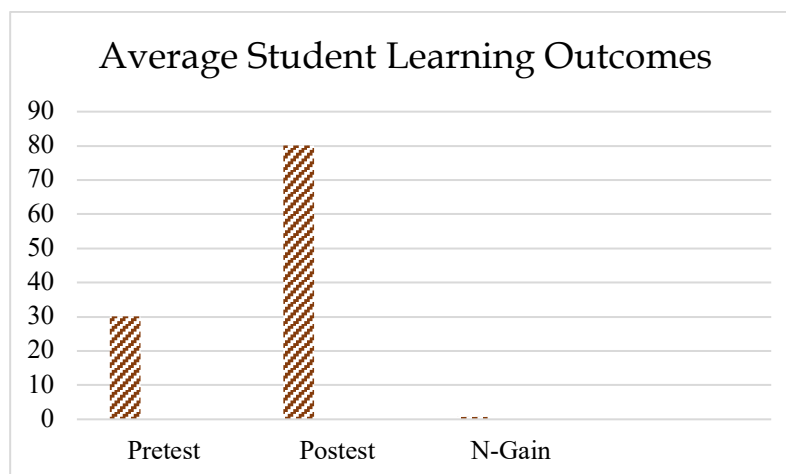
Figure 1. Percentage of Student Learning Outcomes

Based on Figure 1, there is a difference in student learning outcomes. The average pre-test score is 30.19. After participating in learning that applies Qur'anic value-based e-magazine media on biodiversity material, there was an improvement with an average post-test score of 80.19. From this, an N-Gain value of 0.72 was obtained, which falls into the high category.

b. Discussion

Learning media is an important part of the learning system that serves as a means to convey educational information between educators and students. Therefore, this media can create an effective and efficient learning atmosphere and improve student learning outcomes [10]. The use of creative and innovative learning media can encourage an increase in student learning outcomes during the learning process [11].

E-magazine learning resources are a breakthrough in utilizing technology to improve the quality of classroom learning. Learning resources play a significant role in the learning process, so they need to be managed systematically, qualitatively, and functionally [12]. The use of innovative learning resources can stimulate interest, motivation, and engagement in the learning process, greatly assisting in conveying messages to students [13].

Based on the research results, it was found that before learning using Qur'anic value-based e-magazine media, all students scored below 70 and

did not meet the KKM. The average pre-test score obtained by students was 30.19, with the lowest score being 15 and the highest being 50. After learning with Qur'anic value-based e-magazine media, students' learning outcomes improved, with all students achieving the KKM. The average post-test score obtained by students was 80.19, with the lowest post-test score being 70 and the highest being 90. This proves that the use of Qur'anic value-based e-magazine media can enhance students' learning outcomes.

Learning outcomes reflect the abilities students acquire after engaging in learning activities. Learning aims to achieve relatively permanent behavioral changes [14]. This research aims to determine the learning outcomes of high school students using Qur'anic value-based e-magazine learning media on biodiversity material. The pretest was conducted to measure students' understanding before the treatment was applied to the learning material with this media. The post-test was given after the use of learning media to measure students' final abilities [15]. The use of e-magazine learning media leverages digital data that can be accessed through electronic media on devices such as laptops, PCs, and phones, allowing students to learn anytime and anywhere, thus potentially improving their learning outcomes. The use of electronic learning media can provide updates in the classroom learning process and influence students' academic performance or learning outcomes [16].

The learning process is a communication process that involves three main components: the teacher as the sender of the message, the students as the receivers of the message, and the message itself. Therefore, it is necessary to have learning media that are easy for students to understand in the communication process [17]. The e-magazine learning media based on Qur'anic values has proven effective in conveying information related to biodiversity material, resulting in improved student learning outcomes after the post-test. This is evidenced by the difference in student learning outcomes, where the average pre-test score was 30.19. After participating in the learning that applied e-magazine media based on Qur'anic values on biodiversity material, the average post-test score increased to 80.19. After

being tested with N-Gain, a value of 0.72 was obtained, which falls into the high category.

The improvement in student learning outcomes after using the e-magazine based on Qur'anic values can be explained by several interacting factors, ranging from increased motivation, deeper understanding, more engaging learning experiences, to character development. With media that connects the subject matter with moral and spiritual values, students not only acquire cognitive knowledge but also build positive attitudes that support their academic success. Therefore, the e-magazine based on Qur'anic values has the potential to comprehensively enhance the quality of student learning outcomes.

4. Conclusion

Based on the research results and discussion, it can be concluded that the e-magazine learning media based on Qur'anic values on biodiversity material can improve the learning outcomes of students at SMA Negeri 5 Banda Aceh by 0.72, which falls into the high category. This Qur'anic values-based e-magazine not only teaches academic material but also introduces students to the importance of integrity, responsibility, and life values based on Islamic teachings. With its interactive, flexible, and relevant approach to everyday life, this media can enhance students' motivation, understanding, and overall learning outcomes.

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