Arabic Language Learning Innovation: Utilizing QR Code-Based Digital Textbooks for Enhanced Comprehension

M. Dzikrul Hakim Al Ghozali[1], Aufia Aisa[2], Amrini Shofiyani[3]
Universitas KH. A. Wahab Hasbullah[1,2,3]
e-mail : [1]m.dzikrul@unwaha.ac.id, [2]aufiaaisa@unwaha.ac.id,
[3]amrinishofiyani@unwaha.ac.id

Abstract: The use of textbooks as learning media in Arabic language subjects so far has not been fully said to be good because it is still conventional so that it causes students' understanding of Arabic to be less than optimal, this is because the learning media used is not digital-based. This study aims to develop and evaluate the effectiveness of textbook media equipped with QR Code in improving Arabic comprehension. The method used in this research is Research and Development (R&D) by applying the Borg & Gall model. The data instruments used were observation, questionnaires and tests. The results of this study are: 1) developing QR Code textbook media products to improve students' understanding of Arabic at the State High School level through 6 stages, namely potential problems, product design, product trial I, product revision I, product trial II, revision and finalization, 2) based on the validity test of 2 experts, material experts reached an average of 80% with a valid category that could be used but needed revision, while media experts reached an average of 90.7% with a very valid category used without revision 3) The results of the effectiveness of the textbook developed from the assessment of the response results of female students reached 91.82% with a very feasible category so that the product could be used in learning.

Keywords: Learning Media; Digital Textbook; QR Code; Arabic Language.

INTRODUCTION

In the context of education in Indonesia, learning media plays a vital role in supporting an effective and efficient teaching and learning process. As a country with vast cultural and geographical diversity, Indonesia faces challenges in providing equitable access to quality education. Learning media, both traditional ones such as textbooks and technology-based ones such as multimedia and digital, are the solution to bridge the gap (Rindawati et al., 2024). According to data from the Ministry of Education and Culture, the integration of technology in education has shown a positive impact on improving the quality of learning, especially in remote areas that are difficult to reach. Educational technology, such as e-learning and interactive media, allows for more engaging and interactive delivery of materials (Apriyani et al., 2023), and provide opportunities for students to learn independently (Yusuf, 2024). However, the current implementation of learning media is faced with various challenges, including limited infrastructure, device availability, and educator readiness (Fauzan et al., 2024). Therefore, continuous efforts

in the development of innovative and relevant learning media are needed to achieve the goals of national education, namely educating the nation's life and improving the quality of Indonesian human resources. In addition, various problems that occur, especially at the secondary school level, such as the lack of enthusiasm of students in learning, the lack of enthusiasm of students in learning, and the lack of enthusiasm of students in learning (Ritonga et al., 2022), teachers lack in developing creative and innovative media or methods based on information technology (Ni'mah & Nasiruddin, 2020), and some aspects of literature in reading, speaking, writing, and listening are lacking in Arabic comprehension (Alwani et al., 2023).

The use of textbook media equipped with QR codes has received attention from various experts in the field of technology education. Learning media that integrate digital technology can increase the effectiveness of the teaching and learning process by making the material more interactive and easily accessible (Domogen, 2023). This is in line with Mayer's opinion that emphasizes the importance of multimedia learning, where the combination of text, images, and sound can improve understanding and retention of information. In addition, Rosen and Nelson state that QR Code as a bridge technology between printed and digital materials (Faizul et al., 2022) can facilitate learning that is more dynamic and responsive to student needs (Rahayu et al., 2022). In the context of Arabic language learning, the integration of QR Codes allows students to listen to the correct pronunciation, see examples of usage in sentences, and practice interactively, which according to Piaget's constructivist theory can reinforce learning through direct experience and personal meaning formation. Thus, the use of QR Codes in coursebooks not only increases accessibility and student engagement, but also supports a more holistic and effective approach to learning.

The use of digital-based textbook media equipped with a QR Code can significantly increase the level of student understanding (Wahyu Laras Pertiwi et al., 2023). This is due to several factors (Nasrullah & Baihaqi, 2022). First, QR codes enable the integration of printed materials with digital content, such as videos, animations, and interactive exercises, which enriches students' learning experience (Candra & Mufliharsi, 2020). Second, it facilitates easy and quick access to additional relevant learning resources, allowing students to repeat material or get more in-depth explanations as needed (Himayatul Bariroh & Sabarudin, 2023). Third, the use of QR Codes supports independent and flexible learning (Fatwa et al., 2023), where students can learn anytime and anywhere using their devices (Iskandar et al., n.d.). All of this contributes to increased student motivation and engagement, ultimately deepening their understanding of the subject matter (Awwalina & Indana, 2022).

Improving Arabic language comprehension is one of the important focuses in education in various institutions in Indonesia, especially in Islamic religious-based schools and pesantren. Arabic is not only considered a religious language used in worship and reading the Qur'an, but also as an important international language of communication in the Islamic world (Ataji et al., 2022). However, Arabic language

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learning in Indonesia often faces various challenges, including limited interactive teaching resources, lack of trained teachers, and varying student motivation (Antik Estika Hader et al., 2023). Based on reports from the Ministry of Religious Affairs, the level of Arabic language acquisition among students still needs to be improved to reach the expected competency standards. To overcome this obstacle, the integration of modern learning methods and technology, such as the use of interactive and digital media, is becoming increasingly important. The application of these technologies, such as textbooks equipped with QR codes, is expected to provide access to additional materials that are more diverse and engaging, (Nurmala & Rahmaneli, 2024) help students understand Arabic more deeply, and improve their skills in reading, (Lokollo & Mali, 2024) write, and speak the language (Dini Sirma Budi et al., 2022). Thus, this effort not only enriches students' learning experience, but also prepares them to participate more actively in the global community that uses Arabic (Maulidi & Aisa, 2023).

Based on the results of observations by researchers at State High School 4 Jombang Class XII Language Department, the problem obtained is that teachers still use conventional methods both in terms of understanding the linguistic aspects and vocabulary and the lack of utilization of technological media in learning, so this textbook media needs to be used as a solution to the above problems. Textbook media equipped with QR Code offers a new way to enrich the learning process. QR codes allow the integration of printed materials with interactive digital content, such as explanatory videos, practice questions, and audio conversations in Arabic (Oktiningrum & Putri, 2023). The use of this technology not only makes learning materials more interesting, but also makes it easier for students to learn independently and repeat material anytime and anywhere. By accessing various forms of media through QR codes, students can deepen their understanding of the Arabic language more comprehensively. This technology also supports learning methods that are more adaptive and suited to the individual needs of students, so it is expected to increase their learning motivation and overall learning outcomes.

QR code-based textbooks combine conventional teaching methods with digital technology. QR codes, or Quick Response codes, are two-dimensional matrix codes that can be scanned using electronic devices such as smartphones or tablets (Nur & Harahap, 2021). By scanning the QR code contained in the textbook, students can directly access various additional learning resources, such as explanation videos, interactive exercises, pronunciation audio, and other additional materials. This allows students to gain a deeper and more comprehensive understanding of the material being taught (Prawiyogi et al., 2021).

The formulation of the problem raised by the first researcher is how to develop QR Code textbook media in improving the Arabic language understanding of Class XII Language Department students at State High School 4 Jombang, the second is about how valid it is to develop QR Code textbook media in improving the Arabic language understanding of Class XII Language Department students at State High School 4

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Jombang, and the third is about how effective it is to develop QR Code textbook media in improving the Arabic language understanding of Class XII Language Department students at State High School 4 Jombang.

This study aims to evaluate the effectiveness of using QR code-based textbook media in improving understanding of Arabic language material. Through this research, it is hoped that a clearer picture can be obtained regarding the effectiveness of QR code-based textbooks in Arabic language teaching. The results of this study are expected to be the basis for the development of more innovative and effective teaching methods, so as to improve the quality of Arabic language learning in various educational institutions.

METHOD

Type Of Research

Borg and Gall's R&D (Research and Development) model is a research method designed to develop and validate educational products (Amalia et al., 2023). The model consists of ten systematic steps, spanning from initial data collection to product testing and refinement (Nasrullah & Baihaqi, 2022). However, the researcher simplified it into six main steps, which were adjusted to the research to be carried out. The research procedures are potential problems, product design, product trial I, product revision I, product trial II, and revision, finalization and implementation. Each stage is designed to ensure that the product developed is not only based on theory but also effective and practical in its use in the field.

In its implementation, the Borg and Gall R&D research model requires intensive involvement from researchers and practitioners in the field of education (Rahman et al., 2022). For example, at the initial field trial stage, the developed product is tested on a small scale to obtain feedback that will be used to make revisions. Next, at the main and operational field trial stage, the product is tested on a larger population to ensure its effectiveness and reliability before it is finally refined and disseminated. This iterative process allows researchers to systematically identify and correct product weaknesses, ensuring that the final product truly meets user needs and desired quality standar.

Research Setting

The setting of this research was conducted at State High School 4 Jombang. And the characteristics in this study are the population of 25 students of class XII State High School 4 Jombang. Furthermore, the sample of this study was taken students of Class XII Language Department of State High School 4 Jombang. The instruments used to collect data in this study were observation, interviews, questionnaires, and tests.

Research Procedure

Research and Development (R&D) research using the Borg and Gall Model involves several systematic stages to develop and evaluate specific products or programs (Nurdiansyah et al., 2023).The instruments used to collect data in this study were

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observation, interviews, questionnaires, and tests (Nur & Harahap, 2021). This research procedure began with a problem and needs identification stage conducted through literature studies and field surveys to determine areas that require development. After that, research planning was carried out which involved determining the objectives, research design, and initial data collection. The next stage is initial product development, where a prototype or initial product design is created based on the needs analysis. This prototype was then evaluated through expert validation to ensure its accuracy and feasibility before an initial trial was conducted.

To validate the results of the product developed, several validators were selected who were considered experts in their fields to provide assessments and improvements, namely one expert in the field of Arabic language material and one expert in the field of media. The technique used to analyze expert validation data is using a Likert scale (Siregar, 2023). Furthermore, to measure the effectiveness of the media, researchers took 3 stages of testing, namely validity tests to material experts and media experts, respondent questionnaire tests and paired t-tests (Ayu Nila Wati et al., 2023).

The score categories in the Likert scale are described in the following table:

Table 1. Likert Scale of Feasibility of Teaching Book Media

No	Category	Score
1	Very Good	5
2	Good	4
3	Fairly Good	3
4	Not Good	2
5	Not Very Good	1

Furthermore, the scores will be processed using the Likert scale formula using the following formula:

$$P = \sum \frac{x}{xi} \times 100\%$$

Description:

P : Feasibility Percentage

x : Total number of validator answer scores

xi : Total score of the highest answer (ideal value)

Furthermore, the percentage of feasibility of application products obtained from media experts and material experts is then interpreted into feasibility criteria.

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Table 2. Likert Scale of Media Feasibility Criteria for Textbooks

No.	Percentage	Criteria
1	81%-100%	Very valid, can be used without revision
2	61%-80%	Valid, can be used but needs revision
3	41%-60%	Moderately valid, not recommended
4	21%-40%	not to be used as it needs major revision
5	0%-20%	Invalid, should not be used

After conducting the validation stage, the researcher can then analyze the product trial data using a student response questionnaire. The percentage of student responses is calculated using the following formula:

$$P = \sum \frac{x}{xi} \quad \text{x } 100\%$$

Description:

P : Percentage of student response results

x : Total number of scores obtained

xi : Total maximum score

Determination of the product feasibility level as listed in the table below:

Table 3. Likert Scale Interpretation Criteria for the Feasibility of Teaching Book Media

No.	Percentage	Interpretation Criteria
1	81%-100%	Very feasible
2	61%-80%	Feasible
3	41%-60%	Moderately feasible
4	21%-40%	Not feasible
5	0%-20%	Very unfeasible

Media products are said to be suitable for use in learning if the results of the student response questionnaire assessment reach a percentage of 65%.

Then the t-test is carried out, the t-test formula is as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2} - 2r\left(\frac{s_1}{\sqrt{n_1}}\right)\left(\frac{s_2}{\sqrt{n_2}}\right)}}$$

KETERANGAN :
$\bar{x}_1$ = Rata-rata sampel 1
$\bar{x}_2$ = Rata-rata sampel 2
s_1 = Simpangan baku sampel 1
s_2 = Simpangan baku sampel 2
s_1^2 = Varians sampel 1
s_2^2 = Varians sampel 2
r = Korelasi antara dua sampel

Figure 1: Pairwise t-test formula

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The media feasibility value can be said to be significant if the Sig. (2-tailed) is less than the value of 0.05, it can be concluded that the data results obtained are feasible. However, if the value obtained is more than 0.05, it can be said to be insignificant.

Data Analysis Procedure

In a Research and Development (R&D) study focusing on developing QR Code-based textbooks to improve Arabic comprehension of grade XII students, data analysis showed significant results. Data collected through pre-test and post-test, as well as student satisfaction surveys, showed substantial improvements in vocabulary comprehension, grammar, and Arabic text reading ability. The integration of QR codes in the coursebook allows students to access additional content such as explanatory videos, interactive exercises, and digital dictionaries, which effectively enriches the learning process. The results of this analysis confirm that the use of QR Code technology not only increases student engagement but also accelerates comprehension of the material, making it an effective and innovative method in Arabic language teaching at the secondary education level.

RESULTS AND DISCUSSION

QR Code Textbook Media Product Development

Based on the stages of the research and development model using 6 steps of Borg and Gall, the results of the research are potential problems, product design, trial I, product revision, trial II, and product revision and finalization.

1. Potential Problems

Based on the results of observations and interviews, researchers found the identification of these problems, namely the accessibility and availability of materials that are lacking, conventional teaching methods that make it boring for students, students' learning resources that are still lacking outside of class hours, lack of technology integration in learning can make students less prepared to face the demands of the digital world.

Table 4. Preliminary Needs Analysis Results

No	Need Indicator	Number of Students Agreeing (√)	Percentage Agreeing
1	Limited access to or inadequate teaching materials	20	80%
2	Conventional teaching methods are boring	25	100%
3	Lack of adequate learning resources outside class	18	72%
4	Insufficient integration of technology in learning	23	92%
5	Support for developing a digital product	24	96%

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2. Product Design

The purpose of researchers making this product design is the first to know the development of learning media, to know the validity of the preparation of learning media designs and to determine the effectiveness of the development of QR Code textbook learning media in improving Arabic language understanding at the State High School level.

Dars Fahmul Masmu'

Dars Kalam

Dars Fahmul Maqru'

Dars Kitabah

Figure 2: Design textbook Arabic based QR Code

Product Validation of QR Code Teaching Book Media Development

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After the researcher designs the media product, the researcher submits validation and revision to 2 validators to be assessed and given justification input so that the QR Code textbook media designed is as expected. The following are the steps taken by researchers designing products:

● Material Validation

After the preparation of the QR Code textbook media product is complete, a validation test is carried out to material experts and media experts. This application product was validated by a material expert, namely Ar Riza Ayu S Rahmawati, S. Pd as an Arabic Language Teacher at State High School 4 Jombang. Filling out the questionnaire is adjusted to the expert's assessment of the product developed. The following are the results of the validation of QR Code textbook media products by material experts:

Table 5. Material Validator Assessment Results

No	Assessment Indicator	$P = \sum \frac{x}{xi}$ x 100	Validity Category
1	Content/Material Aspect	76 %	Valid, usable but needs revision
2	Evaluation Aspect	80 %	Valid, can be used but needs revision
3	Completeness Aspect	100 %	Very valid, can be used without revision
Average		80 %	Valid, can be used but needs revision

Based on the table above, the average percentage of product assessment of QR Code textbook media by material experts is 80%. Then to find out the validity category of the coursebook, the percentage value is adjusted to the predetermined validity criteria table.

Table 6. Final Results of Material Validator Assessment

Assessment Percentage	Percentage (%)	Category of Validity
80 %	61% - 80%	Valid, can be used but needs revision

Based on the table above, the feasibility of the product is included in the Valid category, can be used but needs revision if implemented in learning.

● Media Validation

Furthermore, the application product is validated by media experts, namely Faculty of Religion Lecturer in Islamic Education Study Program M. Saihul Atho', M. Pd. The questionnaire filling is adjusted to the expert's assessment of the product developed. The following are the results of application product validation by media experts:

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Table 7: Assessment results of media validators

No	Assessment Indicator	$P = \sum \frac{x}{xi}$ x 100	Validity Category
1	Book Size Aspect	100 %	Very valid, can be used without revision
2	Book Content Design Aspect	89,2 %	Very valid, can be used without revision
Avarage		90,7 %	Very valid, can be used without revision

Based on the table above, the average percentage of QR Code teaching book product assessment by media experts is 90.7%. Then to find out the category of validity of this QR Code textbook product, the percentage value is adjusted to the table of validity criteria that have been determined.

Table 8. Media Validator Final Results

Assessment Percentage	Percentage (%)	Category of Validity
90,7 %	81% - 100%	Very valid, can be used without revision

Based on the table above, the feasibility of the product is included in the very valid category, can be used without revision if implemented in learning.

● Product Revision

In this stage the researchers made improvements or revisions to the QR Code coursebook media from the media validator's suggestions, namely in the form of changing themes that are more interesting for students and changing fonts for proportional suitability as creative coursebooks. Furthermore, the revision of the material from the material validator is the addition of learning objectives and learning outcomes for the completeness of the coursebook and the addition of a table of contents to add clarity to the contents of the book.

● Student Respondent Quistionnaire Data

After going through the validation test and revision, this product was tested on 25 students of Class XII Language Department of State High School 4 Jombang, the following is the respondent's questionnaire after product revision:

Table 9. Respondent Questionnaire After Product Revision

No	Statement	Score Value				
		1	2	3	4	5
1	The appearance of this book is interesting				v	

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2	This book makes me more enthusiastic in learning Arabic.					v
3	This book can make learning Arabic less boring.					v
4	Clarity of learning instructions					v
5	The audio can help to understand the material					v	
6	The material discussion is presented clearly					v
7	The material discussion is systematic and easy to understand					v
8	QR Code is easy to access					v
9	The existence of evaluation questions can help and increase understanding					v
10	The existence of stories about local wisdom can add to my insight					v
11	The language used is easy to understand					v
12	The sentences and paragraphs used in this book are clear and straightforward.					v
13	Latin fonts can be read clearly					v
14	Arabic fonts can be read clearly					v
15	The existence of tables greatly facilitates understanding					v	
Value		**72**				

Furthermore, the questionnaire results are reduced as a whole using the Likert scale formula. The following are the results of product trials based on student response questionnaires:

Table 10. Student Questionnaire Results Table After Product Revision

Assessment Percentage	Percentage (%)	Feasibility Category
91,82 %	81 % ≤ P ≤ 100 %	Very Feasible

Based on the table above, the feasibility of the product is included in the very feasible category so that the product can be used in learning.

Effectivieness of QR Code Textbook Media Product

3. Trial I (Small class)

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Furthermore, limited trial I (small class) consisting of 25 students of Class XII Language Department State High School 4 Jombang on January 12, 2024.

The following are the results of the pretest and posttest calculations in trial I (small class) using the SPSS application:

Paired Samples Statistics

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRETEST	51.3333	25	6.91492	1.26249
	POSTEST	83.8333	25	4.29180	.78357

Based on the graph and the results of the spss calculation above from 25 respondents, this output shows the results of the descriptive statistical summary of the two samples or pretest and postest data. Then get the average results of the pretest which is 51.3 classified as "Quite Feasible" criteria and postest 83.8 criteria classified as "Very Feasible" in trial I (small class) on Class XII students of the Language Department of State High School 4 Jombang and the media can already be tested II (large class).

4. Product Revision I

At this stage, the researchers made improvements by adding exercises as an evaluation of student understanding. The following are the results of student questionnaires before the product revision process:

Table 11. Student Respondent Questionnaire Table Before Product Revision

Assessment Percentage	Percentage (%)	Feasibility Category
86,24 %	81 % ≤ P ≤ 100 %	Very Feasible

Based on the table above, the feasibility of the product is included in the very feasible category so that the product can be used in learning but needs minor revisions.

5. Trial II (Large Class)

Furthermore, Trial II (Large Class) to measure student learning outcomes according to the media presented. Furthermore, researchers continued to trial II (large class) consisting of 25 students of Class XII Language Department of State High School 4 Jombang on January 17, 2024.

The following are the results of the pretest and posttest calculations in trial II (large class) using the SPSS application:

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Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PRE TEST	54.4000	25	13.17510	2.63502
	POST TEST	86.2000	25	8.20061	1.64012

Based on the graph and the results of the spss calculation above from 25 respondents, this output shows the results of the descriptive statistical summary of the two samples or pretest and postest data. Then get the average pretest results of 54.4 classified as "Quite Feasible" criteria and postest 86.2 criteria classified as "Very Feasible" in trial II (large class) on 25 students of Class XII Language Department State High School 4 Jombang and the media can already be used as a support for students' understanding of Arabic in learning.

Paired t-test

Paired Samples Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	PRE TEST - POST TEST	-31.80000	8.88351	1.77670	-35.46693	-28.13307	-17.898	24	.000

Based on the Sig. (2-tailed) value of 0.000 <0.05, it can be concluded that there is a significant difference between students' understanding in Arabic on pretest and posttest data.

6. Product Revision and Finalization

This stage is the last stage after conducting trial II (large class) researchers got some shortcomings, namely the addition of examples of solid sentences / the number of *mufidah* in accordance with local wisdom and the addition of a bibliography in the QR Code coursebook. This revision is the last and is carried out with the aim of perfecting the QR Code coursebook media to add learning resources in improving students' understanding of Arabic.

The development of technology-based learning media has a significant impact on the effectiveness of the teaching and learning process, particularly in Arabic language education. Based on the conducted research, digital interactive media can increase student engagement in learning activities. This is evident from the increased student participation during learning sessions, where students become more active in asking questions and discussing. Additionally, there is a significant improvement in material comprehension compared to conventional methods, considering students' generally low Arabic language proficiency across the four language skills.

However, the development of this learning media also faces several challenges. One of the main obstacles is the availability of adequate technological infrastructure in

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all schools. Not all schools have access to necessary technological devices such as computers or tablets. Furthermore, teachers' ability to utilize technology varies, which may affect the effectiveness of implementing this learning media. Therefore, comprehensive teacher training is needed to enable them to effectively integrate technology into the learning process.

Despite these challenges, this research demonstrates that technology-based learning media has great potential to improve education quality. With proper support from the government and educational institutions, along with improved technological infrastructure and competencies, digital learning media particularly QR Code textbook media can become a highly effective tool in the educational process. Further research is needed to explore the best strategies for overcoming existing obstacles and optimizing the benefits of this technology-based learning media.

The success of QR Code textbooks in this study aligns with previous research findings on technology-assisted language learning. Research by (Alakrash and Razak, 2021), shows that mobile-assisted Arabic learning applications (MALL) can increase student motivation and participation. Similarly, this study proves that interactive elements in QR Code textbooks, such as audio, visuals, and exercises, play a crucial role in enhancing student interest and knowledge retention. The paired t-test results (Sig. 0.000 < 0.05) showing significant post-test score improvements reinforce findings by (Al-Sobhi and Preece, 2018), about technology's effectiveness in Arabic vocabulary and grammar mastery.

The implementation challenges encountered in this study also reflect issues identified in digital education literature. Technological infrastructure disparities, particularly in rural or underprivileged schools, remain a major barrier to digital learning adoption (Selwyn, 2019). Additionally, variations in teachers' educational technology skills highlight the importance of continuous training programs (Tondeur et al., 2017). The revision phase in this study, which emphasized content localization, also aligns with (Al-Musalli's, 2019), recommendations regarding the need for culturally relevant learning materials.

To optimize the benefits of technology-based learning media, strategic measures are required. First, the government needs to expand programs for equitable access to educational technology, including providing adequate devices and internet connectivity. Second, educational institutions should develop teacher training programs focused on technology integration in pedagogy. Third, further research is needed to examine the long-term effectiveness of various digital media in Arabic language learning contexts. With this comprehensive approach, the digital transformation of Arabic language education can be realized more inclusively and sustainably.

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CONCLUSION

This study successfully developed QR Code-based textbook media to enhance Arabic language comprehension among State High School 4 Jombang students through six systematic stages: problem identification, product design, initial trial (Trial I), first revision, second trial (Trial II), and final refinement. The validation process involving two expert evaluators yielded significant results, with material experts rating the product at 80% (valid but requiring minor revisions) and media experts assessing it at 90.7% (highly valid without need for revision). Most notably, the effectiveness test demonstrated outstanding results, with 91.82% of student respondents rating the textbook as highly suitable for learning implementation.

These findings substantiate that the developed QR Code textbook media meets rigorous standards of both content validity and technical quality while proving highly effective in practical classroom applications. The positive student responses and expert validations confirm that this digital learning innovation successfully addresses the need for more engaging and accessible Arabic language instructional materials. The research outcomes suggest that such technology-enhanced textbooks can significantly contribute to improving Arabic language education at the secondary Islamic school level, particularly when developed through this study's comprehensive research and development framework.

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