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# Development of Teaching Materials Rights and Responsibilities of Citizens based on QR Code

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|   | Abstract   |  |
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| Article History<br>Article Submission<br>20 December 2022<br>Revised Submission<br>24 January 2023<br>Article Accepted<br>27 March 2023 | Practical teaching development support teaching and learning activities is important. The teaching support can be in QR Code-based teaching materials form. This research aims to produce teaching materials on the Rights and Responsibilities of Citizens based on QR codes. Dick and Carey's process entails ten stages and called research and improvement. Teaching materials with QR Codes based on study findings on various analysis is the innovation of this study. Thus, learning resources with QR codes can be found relatively faster than those that don't do so. Therefore, creating and evaluating the viability and efficacy of teaching resources for citizens' rights and obligations based on QR codes is essential. This study used Research and Development with Dick and Carey. The study results showed the teaching materials on citizens ' rights and obligations are based on QR codes and published by PT Raja Grafindo, with ISBN and intellectual property rights submitted. The feasibility teaching materials was scored by material, language, and media experts as 4.82, 4.8, and 4.88, respectively. The effectiveness of teaching materials had a t <sub>count</sub> of 20,093 > from a t <sub>table</sub> of 2,093 with a t-test at 0.05, indicating 46.53% significant increase. Based on the research results, QR Code-based teaching materials for citizens ' rights and obligations are feasible and effective in increasing learning outcomes by 46.53%. The study concluded that teaching materials on Citizenship Rights and Responsibilities development has been completed, and IPR has been submitted through the LP2M (Institute for Research and Community Service) State University of Jakarta. |  |

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### Introduction

Learning comprehensive Citizenship Education with supporting facilities is a good lesson. Supporting suggestions can be in the form of the latest teaching materials in the form of mandatory and supporting textbooks, learning media, evaluation tools, and other supports. However, the current condition is that the learning of Citizenship Education courses with a weight of 2 The semester credit system (SKS) does not yet have the latest teaching materials. The teaching materials currently available are only books published in 2012, so there needs to be improvements or revisions based on the latest research results. It aims to create good citizens; teaching materials are needed that are in accordance with current conditions. Teaching materials based on research results have advantages such as having a feasibility basis from experts who assess the teaching materials. Teaching materials based on research results can also be measured for their effectiveness from the test data obtained, so that the results obtained from the application of these teaching materials are more measurable.

This improvement study must be carried out in accordance with how urgent the circumstances and issues are. This is consistent with the required outputs created in the form of books and teaching aids with ISBNs, IPRs, as well as global recognition in the form of articles published in respected journals. -based educational resources Code QR. A QR Code is a matrix and dimension symbol made up of squares in black and white that are placed in a field that is surrounded by an obtusely angled square-shaped frame. This section of the pattern indicates the QR Code's version (ISO/IEC 18004, 2000 in Liantoni et al., 2019) QR Code (Quick Response Code) was developed as a code classification that allows high-speed reading using image capture technology with a QR Code Scanner (Edinger et al., 2018).

As citizens, every person plays an essential role in teaching their children how to be responsible digital citizens. Individuals must ensure that their children are aware of their digital rights and responsibilities, such as respecting the privacy of others and understanding the importance of using technology appropriately and responsibly. Teaching materials can help educate children on digital citizenship. Teaching materials include handouts, videos, websites, and online courses. Citizens are responsible for ensuring that their children understand the importance of being responsible as digital citizens. It should be imparted to children the importance of being mindful of their online activity, respecting others' opinions, and being aware of their digital footprint. As digital citizens, the right to privacy, freedom of expression, and the ability to share information safely and responsibly. The responsibility to protect digital identities and use digital tools in a manner that does not infringe on the rights of others is crucial.

QR codes, or Quick Response codes, are two-dimensional barcodes that contain encoded data such as URLs, text, or contact information (Siang et al., 2019). QR codes can be scanned using smartphones or other devices to access the data they contain. QR codes can link students to outside sources, such as websites and videos in teaching materials. They can also provide students access to additional information and resources (Liantoni et al., 2019). Teachers can use QR codes to link students to articles or videos related to a lesson. Teachers can also use QR codes to link quizzes, activities, and other materials that supplement lessons. QR codes can be used to make the teaching materials more interactive. Teachers can link QR codes in worksheets or notes to additional material. This can help students access additional information and resources related to their lessons (Solihatin et al., 2021). QR codes can also be used in the classroom to provide students with real-time feedback on their performance, such as after a quiz or activity (Sholikah et al., 2020).

The innovation of this study is teaching materials based on QR Code, which is based on various analyses of study findings that have been published in publications. As of now, electronic companies in Japan use the QR Code. In Indonesia, the use of QR Codes is generally in tracing trips in public places such as malls, campuses, hospitals, and others through the care-protect application. Thus, learning resources without a QR Code can be found relatively faster than those that do. Therefore, it is essential to create and evaluate the viability and efficacy of teaching resources for citizens' rights and obligations based on QR codes.

# **Literature Review**

It is anticipated that the development's main areas of focus research and development and the resulting products will be able to address a variety of learning-related demands. The presence of "Verstehen," which is defined as understanding and sensitivity to symptoms, occurrences, and events that become the centre of attention in particular contexts, sparks development (Faradilla et al., 2018). The smallest learning unit is used to package teaching resources, which are methodically created based on a specific curriculum and enable independent learning for students within a given time frame (Nasrudidin, 2020).

Teaching materials include all types of materials used by lecturers and teachers to help students learn new information (Rahmawati et al., 2019). To meet predefined competency criteria, students must acquire a set of information, abilities, and attitudes known as teaching materials (also known as instructional materials) (Alfinalin et al., 2021).

The knowledge gained by students does not only come from the delivery of lecturers. However, it is also obtained from various supporting learning sources. Learning resources according to AECT (Association for Educational Communication and Technology) in (Siang et al., 2019) are various or all sources in the form of data, people, and certain forms that can be used in learning activities both separately and integrated and make it easier for students to achieve learning goals. (Table 1) shows the review of research results published in journal as supporting state of the art.

| No | Year | of Research from Journal<br>Article  | Results   |
|----|------|--|---|
| 1. | 2009 | Teachers Perception of The Role<br>of Media in Classroom Teaching<br>in Secondary Schools The<br>Turkish Online Journal of<br>Educational Technology, 8(1)<br>(Taiwo, 2009)  | When it comes to academic<br>accomplishment, there are clear<br>distinctions between pupils who use<br>learning materials intensely and<br>those who use them infrequently.                           |
| 2. | 2006 | Utilization and Advantages of<br>Instructional Media in the<br>Teaching of Social Studies as<br>Perceived by an Omani Student.<br>Malaysian Online Journal of<br>Instructional (Abdelraheem& Al-<br>Rabane, 2005)        | The use of textbooks in the classroom is still very dominant.   |
| 3. | 2010 | A Hubrid client/server and<br>browser/server mode-based<br>universal mobile Ticketing<br>System. In IEEE International<br>Conference on Information<br>Management and Engineering<br>pages 691-695.<br>(Hu et al., 2010) | In order to establish a data security<br>system on tickets utilising QR Code,<br>this system will make it convenient<br>and comfortable for users to conduct<br>ticket transactions.                  |
| 4. | 2011 | Use of NFC and QR Code<br>identification in an electronic<br>ticket system for public transport<br>(Finžgar&Trebar, 2011)  | The introduction of QR Codes on<br>tickets has received overwhelmingly<br>good feedback from customers, who<br>find it simpler to just present the<br>evidence QR Code on their<br>smartphone screen. |

Table 1. Review of research results published in journal as supporting state of the art

| No    | Year        | of Research from Journal<br>Article  | Results  |
|-------|-------------|--|--|
| 5.    | 2020        | Development of Teaching<br>Materials' Quantitative Research<br>Methodology for Student Based<br>on QR Code, PalArch's Journal of<br>Archeology of Egypt 17 (5):395-<br>4080. Scopus Q3 (Solihatin et al.,<br>2020) | The use of instructional materials<br>based on QR Codes dramatically<br>improved the learning outcomes for<br>quantitative research technique. |
| 22021 | Development | of QR Code-Based Character<br>Education Teaching Materials<br>(Solihatin et al., 2021) QR-Based<br>Character Education teaching  | materials Code contributes to an<br>increase in learning outcomes by<br>23.5%  |

## **Rights and Obligations of Citizens**

Right to Citizenship: Article 280 paragraph (4) of the 1945 Constitution as a result of the 2nd amendment states "Everyone has the right to citizenship status". Equality of Position in Law and Government: Article 27 paragraph (1) of the 1945 Constitution "All citizens have the same position in law and government and are obliged to uphold the law and government without exception. The right to work and a decent living for humanity Article 27 paragraph (2) of the 1945 Constitution states "Every citizen has the right to work and a decent life for humanity. The Rights and Obligations of State Defense: Article 27 paragraph (3) of the 1945 UDD as a result of the 2nd amendment "Every citizen has the right and is obliged to participate in efforts to defend the state. Mahfud MD said that state defense is a form of defense that must be adapted to current and future conditions (Sholikah, 2020). Freedom of Association and Assembly: Article 28E paragraph (3) of the 2nd amendment of the 1945 Constitution, states "Everyone has the right to freedom of association, assembly and expression." Article 28E paragraph (3) explains the provisions on the rights of citizens and residents to associate and assemble, express thoughts orally and in writing, and so on. Freedom to embrace religion: Article 29 of the 1945 Constitution paragraph (1) of the state is based on the One Godhead. Paragraph (2) The state guarantees the independence of each resident to embrace their own religion and to worship according to their religion and beliefs. State Defense and Security: Article 30 paragraphs (1) and (2) explain the provisions of the rights and obligations of citizens to participate in the defense and security of the state. The Right to Education: Article 31 of the 1945 Constitution based on the results of the 4th amendment, paragraph (1) every citizen has the right to education. Indonesian National Culture: Article 32 of the 1945 Constitution as a result of the amendments to the fourth paragraph (1) of the state shall promote Indonesian national culture in the midst of world civilization by guaranteeing the freedom of the people to maintain and develop their cultural values. National Economy: Based on Chapter XIV Article 33 of the 1945 Constitution as a result of the 4th amendment in paragraph (1), the economy is structured as a joint effort based on the principle of kinship. Social Welfare: Article 34 of the 1945 Constitution as a result of the 4th amendment, paragraph (1) the poor and neglected children are cared for by the state.

# QR Code

QR Code is a two-dimensional matrix symbol consisting of a string of squares arranged in a larger square pattern. The extent of this square pattern will determine the version of the QR Code ISO/IEC 18004-2015 (Jain et al., 2021). Quick Response Code or commonly referred to as QR Code is a two-dimensional barcode introduced by the Japanese company Denso wave in 1994. This type of barcode was originally used for data collection of vehicle parts production inventory, and is now used in various fields of business services and also for marketing and promotional activities. Basically, the QR Code was developed as a code that allows its contents to be translated at high speed (Rouillard, 2008). The advantage of QR Code is that it is able to store information horizontally and vertically. Therefore, the QR Code can accommodate more information than the one-dimensional code (Tjahyadi, 2021).

Currently, the use of QR Codes has been widely implemented in the form of QR Code Raider applications and QR Code Generators, so that someone will be very easy to create information in the form of QR Codes and get the information they want to know just by scanning and scanning data through media from cellphone cameras (Agustang et al., 2021).

# Methodology

This study uses the Research and Development with Dick and Carey's (Dick et al., 2015). Dick and Carey's covers ten stages which can be illustrated in (Figure 1).



Figure 1. Model Dick and Carey

The Dick-and-Carey model is based on the principle that effective instruction should be designed around specific learning objectives. The model consists of nine steps that guide instructional designers through the process of analyzing, designing, developing, implementing, and evaluating instruction. The nine steps are: identify instructional goals, conduct instructional analysis, analyze learner characteristics, write performance objectives, develop assessment instruments, develop instructional strategies, develop and select instructional materials, design and conduct formative evaluation, and revise instruction.

In the first stage, the researcher identified the general learning objectives based on the needs analysis. Learning outcomes (sub CPMK) a) able to identify the nature of citizens and the relationship between the state and citizens; b) analyze the rights and obligations of citizens; c) analyze the principles of citizenship; d) build awareness about the importance of citizenship status; e) can apply the rights and obligations as a good citizen. The indicators to be achieved are a) able to identify citizens; b) can analyze the relationship between the state and citizens; c) can analyze the rights and obligations of citizens; d) can distinguish the principle of citizenship; e) analyze the importance of citizenship status; f) can apply the rights and obligations as a good citizen. The second stage, the researcher analyzed and classified the learning objectives. This is done by using appropriate sources of books (not teaching materials made by the course lecturers) such as Semester Learning Plans (RPS). The third stage, researchers analyzed the characteristics of students. Students who are research subjects include Generation Z. Generation Z was born in the period 1995-2012 which has dominant characteristics such as having relatively lower physical communication skills than Generation Y, higher use of technology in almost all areas of life (Glass, 2007; MacKenzie et al., 2014; Wiedmer, 2015). Generation Z's high dependence on the internet makes them get everything quickly and easily without significant obstacles (Merriman, 2015). Generation Z has relatively better multitasking capabilities than Generation X, especially with technology support (Cowan, 2014). Based on these characters, QR Code-based Citizen Rights and Obligations teaching materials are suitable for generation Z students. Generation Z's multitasking ability is obtained from daily routines such as reading teaching materials along with other activities such as listening to music, playing social media, and other activities. other. In stage four, the researcher formulates the indicators that will be used. This is based on the results of the learning analysis which was developed into a specific goal (instructional goal). In the fifth stage, the researcher developed an instrument or alt test. The test tool is in the form of an evaluation sheet on the pre-test and post-test that serves to measure students' abilities in learning the Rights and Obligations of Citizens based on QR Code. In the sixth stage, the researcher developed a

power point media, and added a QR Code to the power-point sections, so that students could save the essence of learning, without saving the entire contents of the power point. This is to make it easier for students to learn, and to improve learning outcomes and their application/practice in everyday life.In the seventh stage, researchers design learning with a strategy that can activate students with case based learning. This is done using QR Code-based Citizen Rights and Obligations teaching materials, and power point media with QR Code. In the eighth stage, the researcher designed and developed a formative evaluation. Formative evaluation was carried out to collect data related to the strengths and weaknesses of QR Code-based teaching materials. the results of the formative evaluation process can be used to determine the feasibility of the product. The ninth stage, the researcher made a revision of learning. This is done after the formative evaluation stage is complete. The results obtained from the formative evaluation procedure are summarized, and interpreted to find out the weaknesses of the QR Code-based Citizen Rights and Obligations teaching materials. The tenth stage, the researcher designs and carries out a summative evaluation. Summative evaluation is research conducted at the peak of activity.

**Research Instrument Requirements Test** 

The instrument for the feasibility of displaying the QR Code-based teaching materials of Citizens' Rights and Obligations by students, was tested for validity and reliability. Of the 15 item statements, the number declared invalid (dropped), namely number 4 and 9. Thus, 13 items were declared valid. Based on the calculation of the reliability of the instrument for displaying the QR Code-based teaching materials of Citizenship Rights and Obligations by students, and by calculating the reliability it was found that the value of r11= 0.940 and belongs to the category 0.800-1,000, the instrument has very high reliability. The instrument of the results of the expert study on the subject matter of the Rights and Responsibilities of Citizens based on QR Code is used to find data in the field after testing its validity and reliability. Based on the initial test instrument, the results of learning material on the rights and obligations of citizens based on the QR Code amounted to 25 items.

Eligibility of Teaching Materials Rights and Obligations of Citizens by Material, Language, and Media Experts

The feasibility of the QR Code-based Citizen Rights and Obligations teaching materials was assessed by material experts. The material expert's assessment is based on 11 items.

## One to One Test

One to one test was given to three students. The test results received a good response and appreciation because with the existence of QR Code-based Citizen Rights and Obligations teaching materials, so that they can be studied anytime and anywhere, by scanning the QR Code. Besides, it is not only cognitive/psychomotor in daily implementation.

#### Small Sample Test

Sample test was given to nine different students. The nine students used the QR Code-based learning materials for Citizens' Rights and Obligations. The students selected consisted of three students who got the highest UTS (mid-semester exam) score (can be considered smart), three students who had a moderate UTS score (can be considered to have moderate academic ability), three students who had a low UTS score (considered not yet optimal). in understanding the material).

# Large Sample Test

To see the effectiveness of the QR Code-based Citizen Rights and Duties teaching materials, a pre-test was conducted on twenty students. Normality test was performed using Kolmogorov-Smirnov on pre-test and post-test data, and showed a normal distribution.

Two questions were asked of the participants in the first section of the survey using QR Code technology. Did you try to use your phone or another device to scan the QR Code when you first saw it? College students' awareness, attitudes, interests, and usage of QR codes in the library were gathered using a variety of questionnaires. Three sections of these questions are listed on the questionnaire and were divided accordingly. The first section of the survey questioned students two questions about mobile phone ownership and QR codes, such as "Do you know what a QR code is?".

#### Statistical Analysis

Student's t-test was used to compare the effectiveness of development of teaching materials rights and responsibilities of citizens based on QR code, the significance level was set at 0.05. This means that the results of the t-test must be statistically significant to a level of 95% confidence. SPSS Version 27.0.1.0 Statistical Software Package for analyzing the data.

## **Results and Discussion**

The Dick and Carey model is a popular instructional design model used to design and develop effective teaching and learning materials. The model was developed by Walter Dick and Lou Carey in the 1970s and has undergone several revisions. The Dick-and-Carey model is based on the principle that effective instruction should be designed around specific learning objectives (Rahmawati et al., 2019). Identify instructional goals: Determine the overarching goals of instruction and the specific learning objectives that students should be able to achieve (Taiwo, S., 2009). (1) Conduct instructional analysis: Analyze the characteristics of learners, instructional context, and task to be learned. (2) Analyze learner characteristics: Assess learners' prior knowledge, skills, and attitudes to ensure that instruction is targeted to their specific needs. (3) Write performance objectives: Write clear and measurable learning objectives that specify what learners should be able to do by the end of instruction. (4) Develop assessment instruments: Develop assessment instruments to measure learners' achievement of learning objectives. (5) Develop an instructional strategy: Develop a plan for instruction that includes selecting instructional methods, media, and materials. (6) Develop and select instructional materials: Develop or select instructional materials such as textbooks, workbooks, or multimedia resources that are aligned with learning objectives. (7) Design and conduct formative evaluation: (8) Evaluate the instruction during the development process to ensure it meets the learning objectives. (9) Revise instruction: Using feedback from the formative evaluation to revise the instruction to make it more effective (Edinger et al., 2028).

The identification results were obtained from the analysis of the need for developing QR Code-based Citizen Rights and Obligations teaching materials, through interviews and observations to Citizenship Education lecturers and students taking Citizenship Education courses. The identification results show that the subjects, both lecturers and students, are still having difficulties in learning Citizenship Education because of the unavailability of updated books. The available books are generally books published in 2012 that need to be updated to adapt to the development of the world of education. This is reinforced by the support of students and lecturers in the creation of QR Code-based Citizen Rights and Obligations teaching materials. It aims to facilitate learning activities so that they can be done anytime and anywhere.

Based on this, researchers are interested in making teaching materials, in order to activate students in the learning process. The research team hopes that the use of QR code-based learning materials for citizens' rights and obligations can facilitate the understanding of abstract concepts and learning materials that are realized in concrete form with several examples.

Based on the instrument's reliability calculation for enabling students to view the Citizenship Rights and Duties teaching materials using QR Codes, it was discovered that the instrument has exceptionally high reliability with a value of r11=0.940 and falls within the range of 0.800-1,000. A tool based on the findings of expert research on the subject of citizens ' rights and duties is utilized. The results of the learning material on the rights and obligations of citizens based on the QR Code amounted to 25 items. Based on the validity test results, the invalid numbers were numbers 4,6,11,19, and 23. Thus, 20 valid questions and items were used for the next stage. The instrument had very high reliability from the calculation of the reliability results of r11 0.992 included in the 0.800-1,000 category. Thus, the test instrument had very high reliability.

The score obtained from the assessment is 4.82. After that, the feasibility of teaching materials was assessed by linguists, with a description of five items. The score obtained from the assessment results is 4.8. Then, the feasibility of teaching materials on citizens' rights and obligations was assessed by media experts with a description of eight items, with a final score of 4.88. Three participants underwent the one-on-one test. With the availability of citizen rights and

responsibilities and teaching materials based on QR Codes, which can be scanned anytime, anywhere, the test results have been well accepted and appreciated.

Nine students participated in a sample test. The nine participants used Citizens' Rights and Responsibilities instructional materials that included QR Codes. The students were then divided into three groups. Those with the highest UTS (mid-semester exam) scores (who can be regarded as competent). Those with average UTS scores (regarded as having moderate academic ability). Those with low UTS scores (who still need to be at their best in terms of understanding the material). Based on the small sample size findings, a value of 4.7 was determined as the average.



Figure 2. Before scanning QR code images

(Figures 2) reveals that of the total participants, 22.8% reported "Yes" to the question concerning whether or not the students know about QR codes, while 77.2% responded "No." These students do not know about QR codes. Of the students who responded "Yes," 64.2% were female and 35.8% were male.



Figure 3. Utilising a mobile phone to access a QR code

According to (Figure 3), just 18.2% of individuals indicated they agreed, while 84.5% disagreed. The results demonstrate that the majority of students do not attempt to scan the QR Code symbol when they see it, according to the current sample of mobile network users. Does your system contain a QR Code Reader software system? Is the second query in section two? 18.1% of all pupils gave the "Yes" response, 32.2% gave the "No," and 49.7% gave the "No Idea" response.

The mean pre-test score was  $\bar{x} = 60.6$  with a standard deviation of SD = 4.15996. After learning using the QR Code-based Citizen Rights and Obligations teaching materials, the average post-test value was  $\bar{x} = 88.5$ , with a standard deviation of SD = 5.14526. Learning outcomes increased by 28.2 or 46.53% after using QR Code-based Citizen Rights and Obligations teaching materials. Combining text and visuals in teaching materials improves learning outcomes compared with text-based teaching materials (Mayer et al., 2001). Media use is very effective in supporting learning because integrating narrated text and images in an integrated manner can increase students' ability to understand the material (Bingham et al., 2016). QR code-based =teaching materials can improve learning outcomes and are suitable for Generation Z, who tend to use technology in almost all areas of life, including learning (Solihatin et al., 2021).

Developing teaching materials on the topic of "Rights and Responsibilities of Citizens" using QR code technology can be an innovative and engaging way to enhance student learning. The development of teaching material rights and responsibilities of citizens based on QR codes has revolutionized how we think about education. QR codes have become an integral part of modern teaching, allowing educators to quickly and easily create interactive materials that students can access worldwide. Through QR codes, educators can create materials tailored to the needs of their specific students, which can then be accessed and explored on various devices (Nasrudidin., 2020).

QR codes also offer a new way for students to access educational materials, as any device can scan them with a camera. This makes it easier for students to access the materials they need whenever and wherever they need them. With QR codes, students can also quickly and easily access supplemental materials and resources, allowing them to gain further insight into the topics they are studying. Developing teaching material rights and responsibilities of citizens based on QR codes also helps promote civic engagement and encourages students to think critically about their roles and responsibilities as citizens. By ensuring that students have access to the materials they need to understand their rights and responsibilities, educators can empower them to become more informed and active participants in their communities. This, in turn, can help foster a sense of unity and shared purposes (Sholikah, B., 2020).

Study limitations and recommendations for future research

With the increasing use of technology in the classroom, many educators are turning to use QR codes to help them teach their students about the rights and responsibilities of citizens. QR codes can provide an interactive way for students to learn and engage with the material, making it more engaging and easier to understand. However, there are some study limitations when using QR codes because there is usually a small group of participants in the study. Due to the limited number of participants in a QR code study, gaining a comprehensive understanding of the material can take time and effort. This can lead to a lack of data or skewed results, making it difficult to draw meaningful conclusions from the study.

Furthermore, the lack of a larger sample size can make it harder to generalize the findings to a larger population. In order to get more accurate results, it is essential to ensure that the study has enough participants to provide a comprehensive overview of the material. It is also essential to ensure that the participants represent a diverse range of backgrounds so that the findings truly represent the population. Furthermore, ensuring the findings are accurately reported is crucial, as any errors or omissions can affect the overall accuracy.

#### Conclusion

Based on the results of the study, it can be concluded that the development of teaching materials on Citizenship Rights and Responsibilities has been completed and IPR has been submitted through LP2M (Institute for Research and Community Service) State University of Jakarta. The main product of this research is available on the YouTube platform and a version of the teaching material has been published by the publisher PT RajaGrafindo. The feasibility of teaching materials has been tested and corrected and obtained an assessment from material experts of 4.82, linguists of 4.8, and media experts of 4.88. The effectiveness of QR Code-based Citizen Rights and Obligations teaching materials can significantly improve learning outcomes with a tcount of 20,093 > from a ttable of 2,093 and can increase learning outcomes by 46.53%.

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