

Effectiveness of Qr Code-Based Web Media With a Case Method Approach to Improve Students' Abilities in Making Draping Patterns

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ABSTRACT

Draping patternmaking is a crucial skill in the fashion world, yet students often struggle to grasp the concept and its practical application. These difficulties stem from limited time for practical work and the lack of readily accessible learning resources for draping patternmaking. Web technology allows flexible access to learning materials. QR codes enable quick access to learning content that can be tailored to individual students' needs, supporting flexibility and speed in the learning process. The case method approach, which encourages learning based on real-life case studies, is also increasingly relevant in technology-based learning contexts. This study aims to measure the effectiveness of web-based learning media integrated with QR codes and using the case method approach in improving students' skills in draping patternmaking. This research method employed R&D with the ADDIE development model, which consists of five stages: analysis, design, development, implementation, and evaluation. Based on the study results, validation by material experts (91%) and media experts (95%) was categorized as very valid. The average student response rate of 3.44 indicated a positive assessment of the media. Student perceptions of the media's ease of use, clarity, and usefulness were also very positive. The average N-Gain value of 0.65 indicates that the media's effectiveness is in the moderate category. Thus, this media is suitable for use and has proven quite effective in improving students' abilities in draping learning.

Keywords: case method, draping, QR code, Web

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INTRODUCTION

Education is a key pillar in shaping individual character, skills, and creativity, ultimately contributing to the creation of an innovative and competitive society (Sahira et al. 2022). In the ever-evolving digital era, education is undergoing a major transformation (Destari, 2023). One prominent change is in learning methods. Traditional, passive learning approaches are shifting toward more interactive, collaborative, and technology-based methods. Therefore, many teachers are implementing technology-based learning with specific approaches in each lesson.

Fashion design is a discipline that combines technical skills and high creativity. One of the most important basic techniques in fashion design is patternmaking, particularly draping. Draping is a technique for creating clothing patterns by placing fabric on a body or mannequin and then forming a pattern based on that body shape (Kurniawan, 2020). This technique requires precision, practical skills, and a deep understanding of the structure and properties of the fabric used. As an integral part of fashion design education, draping skills play a crucial role in creating clothing that effectively expresses the design.

Based on observations, in learning draping patterns, many students have difficulty understanding basic concepts and applying them effectively in practice. This difficulty often arises because learning methods are not fully effective in addressing students' practical and theoretical needs in understanding the technique (Prabowo, H., & Santosa, A. 2019). In addition, limited time for practical work and a lack of easily accessible learning resources can be obstacles for students to improve their skills in draping pattern making. Students also tend to be less active in asking lecturers about material they don't understand. During the

learning process, they usually only watch lecturers demonstrate how to make draping patterns. As a result, when given assignments, many students have difficulty understanding the material because there are no supporting media available to review the learning at home. Oral learning communication alone is not enough to help students understand abstract material. Therefore, equipment or media are needed that can concretize these abstract concepts (Prior, et al., 2016), while creating a more engaging learning atmosphere. Another problem is that students tend to be too dependent on the internet, especially during class discussions. When lecturers assign cases or assignments, they often search for answers online (Jasrial et al., 2022). This indicates that the internet can serve as an effective learning support tool, from academic consultations and assignments to evaluations, while also enabling more dynamic and interactive interactions between students and instructors (Cholid et al., 2016). This presents a challenge for fashion design education, particularly in draping pattern instruction, which requires more innovative, interactive, collaborative, and technology-based teaching methods.

The use of technology in education can be a solution to address these challenges. One form of technology that can be applied in fashion design education is the use of web-based learning media. Web media has great potential to present information dynamically and interactively, which can help students better understand the material independently. Web technology enables more flexible material delivery, allows students to access learning anytime and anywhere, and provides a more interactive learning experience through various multimedia features (Anwar, 2022). The use of web-based learning media can create a more dynamic, efficient, interactive, and engaging learning environment, thereby increasing student motivation (Azmi, R.A., et al., 2020).

In the context of learning draping patterns, QR Code-based web media can be an attractive solution. QR Codes, or Quick Response Codes, are a type of two-dimensional barcode that aims to convey information and elicit a quick response (Dellia, P., et al., 2022). QR Codes allow students to quickly and easily access learning materials, video tutorials, or even technical draping images through their mobile devices. QR Codes can connect students with additional, more practical and applicable materials, such as step-by-step tutorials on draping techniques, allowing students to follow instructions more visually and directly (Sari, R. 2021). This will undoubtedly enrich their learning experience and facilitate their understanding of more complex draping techniques.

Furthermore, the Case Method approach can also be applied to improve learning effectiveness. The Case Method has become popular in education due to its relevance to solving problems in society (Prayudi, A., et al., 2024). This approach emphasizes the use of real-life case studies that challenge students to solve problems in a practical, context-based manner (Putra, A., & Indriani, S., 2020). In the context of draping, case studies can involve analyzing existing fashion designs or even creating new designs using draping techniques. In this way, students not only learn theory but also engage in the process of solving real-life problems they face in the professional world.

The use of QR Code-based web media integrated with the Case Study Method approach can create a more comprehensive and interactive learning experience, which can enhance students' practical skills in draping pattern making. This study aims to explore the effectiveness of applying these two methods in learning draping patterns and contribute to the development of more innovative and technology-based teaching methods in the field of fashion design.

The integration of web technology and QR Code offers efficient multimedia access, while the Case Method promotes contextual, problem-based engagement. Case-based learning methods can improve students' analytical thinking skills and practical skills because they learn through solving problems that occur in real life (Thistlethwaite, et al. 2012; McLean, S. F. 2016; Das, S., et al 2021). Majid et al. (2021) affirm that QR Code integration improves accessibility and student engagement. Hence, combining these methods uniquely addresses time constraints in practice-based learning and strengthens psychomotor development in draping courses

Overall, this research focuses on optimizing the use of technology, specifically QR Code-based web media, supported by a case study-based learning approach, as an alternative to improve students' skills in fashion design, particularly in draping pattern making. This research has the potential to provide a more efficient and contextual solution to address the challenges faced by students in higher education in learning draping patterns.

LITERATURE REVIEW

Web Learning Media

A website is a digital medium consisting of a collection of interconnected pages that serves to present various types of data such as text, audio, video, or a combination of the three (Khadafi et al., 2019). Generally, each page on a website contains information in the form of text, images, videos, or other multimedia elements (Dini & Ekohariadi, 2024). Websites can be used for various purposes, such as conveying information, providing online services, or running web-based applications. Every website must have a domain name, and the email address used refers to the Domain Name System (DNS), which regulates all computer names on the internet.

Web-based learning is currently gaining popularity, with web technology being utilized in the educational process (Kuswanto, 2018). Rusman (2013) explains that web-based learning is the application of web technology in education to support the teaching and learning process. The learning media in this study were developed using WordPress, a website creation platform that allows users to build sites without programming skills. WordPress provides various templates and plugins that can be customized to user needs and preferences. Furthermore, as open source software, WordPress is free to use and capable of producing attractive web displays (Nugraha, 2018). The use of web-based learning media can reduce the impression of rigidity in the learning process, while increasing effectiveness, interactivity, attractiveness, and student learning motivation (Darussalam, 2015).

QR Code

One form of technology utilization in education, particularly in learning media, is the use of QR Codes (Quick Response Codes). QR Codes are a type of two-dimensional barcode first developed by the Japanese company Denso Wave in 1994. Despite being more than two decades old, QR Codes continue to provide significant benefits in various fields, including education (Majid et al., 2021). QR Codes are a type of matrix code or two-dimensional barcode developed by Denso Wave, a division of the Denso Corporation in Japan. This technology was first introduced to the public in 1994. The device used to read QR Codes is known as a QR scanner (Thonky, 2015).

According to Rubiati & Harahap (2019), a QR Code is a two-dimensional matrix image capable of storing data. In the context of learning, QR Codes simplify their application for educators and provide students with easy access to materials. Previously complex information can now be concisely packaged in an easily accessible code. QR Codes can be placed in various media such as textbooks, posters, worksheets, and presentations, allowing students to quickly access additional resources such as videos, websites, or other supporting materials.

Case Method Approach

According to Majeed (2013), the case study method is an approach to the teaching and learning process that utilizes real-life cases relevant to the course material. These cases can originate from the internal environment of an organization or from the external environment. Through case studies, students are invited to play the role of decision-makers regarding the problems presented. Furthermore, Dewi et al. (2024) state that the case study method is an approach in which students are confronted with real-life problems occurring in their environment. Students are asked to analyze the causes and impacts of the case, then take on the role of decision-makers in resolving them. This process encourages students to actively seek out relevant learning

resources and engage in discussions to solve problems. Through active involvement in case-based learning, students have the opportunity to gain a deeper understanding and achieve optimal learning outcomes.

The case method is a strategy that can be used to develop skills in designing learning processes (Rosidah & Pramulia, 2021). This approach fosters a democratic learning environment, where each group member actively participates, collaborates with others, and defends their opinions while respecting the views of others, thus creating a pleasant learning environment (Anggraeni, 2020). The choice of learning model must be tailored to the material being taught, the students' conditions, and the instructor's readiness. The learning model plays a crucial role in determining the success of the learning process, therefore, it should be a primary consideration in efforts to improve the quality of learning (Tayeb, 2017).

Draping Pattern

The draping technique is a method used in fashion design to enhance the design through fabric arrangement (Aurely Khairunisa, N., & Marganing Utami, 2024). This technique involves strategically draping fabric and then sewing it with allowances in certain areas to create a flowing, flowing effect. When done correctly, the draping technique can produce a highly aesthetic appearance. Mastery of skills and adequate practice are essential to achieving the ideal flow, flexibility, and proportions in clothing. Draping is a method of creating three-dimensional (3D) patterns, designed directly on the body or dress form. Helen Joseph-Armstrong (2008) states that "Draping is a unique method for creating designs without the aid of a pattern or measurements," meaning that draping is a unique method for creating fashion designs without the need for a basic pattern or specific measurements.

Ernawati (2008) explains that pattern making through the draping technique is done by adjusting the fabric directly to the size and shape of the model's body, which aims to simplify the pattern making process. In practice, the model can be replaced by a sewing doll that has a similar size or close to the model's body size. According to Agustin Rinartati (2004), patterns made using the draping technique are one technique in realizing clothing directly on the doll's body shape, which is also known as a three-dimensional pattern. Similarly, Widjiningsih (2006) states that the draping technique is the process of making clothing patterns by draping fabric or paper directly on a dress form or on the human body. The use of the draping technique is also known as a creative approach in fashion design, because it allows designers to directly adjust the shape of the clothing to the model's body silhouette. In this context, shimmer organza fabric was chosen as the main material because it has the ability to reflect light, thereby adding visual dimension and enriching the texture of the dress design.

METHOD

The research on developing QR code-based web media using the case method approach is a type of R&D (Research and Development). Research and Development (R&D) is a research method used to produce a specific product and test its effectiveness (Sugiyono, 2016). The development model used in this study is the ADDIE research model. ADDIE is an easy-to-use model that can be applied to curricula that teach knowledge, skills, or attitudes (Molenda, 2003). This model can be used for various forms of product development in learning activities, such as models, learning strategies, learning methods, media, and teaching materials (Mulyatiningsih, E. 2011). The ADDIE model consists of five stages: analysis, design, development, implementation, and evaluation (Branch, 2009).

This research focuses on media development, which then examines the effectiveness of QR Code-based web media using a case study approach. QR Code was chosen as the primary medium due to its unique and functional characteristics. As a form of digital representation, QR Code can store various types of information, such as URL addresses and other media, which can be accessed quickly and conveniently through digital devices. Research on the development of QR code-based web media with a case method approach to improve students' abilities in making draping patterns was carried out on fourth semester students of the Family

Welfare Education Department, Fashion Design Education Study Program, Faculty of Engineering, State University of Medan.

In this development research, the data collected were qualitative and quantitative. In the product validation stage, the qualitative data consisted of input, responses, criticisms, and expert suggestions for improving the learning media, while the quantitative data consisted of scores obtained from material and media questionnaires. The instruments used in data collection in this study were a needs analysis questionnaire, validation questionnaires from media experts and material experts, and a questionnaire of student responses to the media.

Validation Results Analysis The feasibility of the developed media was measured using validation results in the form of scores. Then, the scores obtained from all aspects were summed and analyzed descriptively, referring to the average score obtained, which was described using the scoring criteria as shown in the following table:

Table 1. Likert Scale Assessment Criteria (Riduwan and Sunarto. 2013)

Presentation (%)	Category
81-100	Very Valid
61-80	Valid
41-60	Quite Valid
21-40	Less Valid
0-20	Not Valid

The results of student knowledge mastery were analyzed by looking at the results of the posttest and pretest. The scores obtained were calculated using the following formula:

$$Knowledge\ Score = \frac{Knowledge\ Score}{Maximum\ score} \times 100$$

Effectiveness Testing Procedure

The effectiveness test employed a *pretest–posttest one-group design* with an additional control group for comparison. The experimental group used QR Code-based web media combined with a Case Method approach, while the control group participated in conventional instruction. Participants were categorized into small (N=9), medium (N=18), and large (N=66) groups. The assessment instrument consisted of ten practical draping tasks administered before and after the intervention.

To determine the increase in post-test and pre-test scores, we calculate the N-gain. The Normalized Gain (N-Gain) was calculated using Hake's (1999) formula:

$$N - Gain = \frac{S_{post} - S_{pre}}{S_{max} - S_{pre}}$$

Interpretation of the N-Gain value calculation is as follows:

Table 2. N-Gain Value Categories

Nilai N-Gain	Category
N-gain<0.3	Low
0.3<N-gain<0.7	Medium
N-gain>0.7	High

The N-Gain interpretation criteria are High (>0.7), Medium ($0.3-0.7$), and Low (<0.3). These criteria ensure clarity and reproducibility of the methodology, which aligns with the evaluation stage of the ADDIE development model.

RESULTS AND DISCUSSION

This research is an R&D study using the ADDIE development model, which consists of five stages: analysis, design, development, implementation, and evaluation. This development method was used to examine how to develop QR Code-based web media using a case method approach. To measure effectiveness, an experiment was conducted focusing on the use of QR Code-based web media using a case method approach. In the effectiveness test, the students were divided into two groups: the experimental group and the control group.

In the development research phase using the ADDIE development model, an analysis stage was carried out. At this stage, observations and interviews were conducted with the lecturer in charge of the draping pattern course. Based on interviews with the lecturer in charge, it was found that in the draping course, many students experienced difficulties in installing bodylines using cord tape on dressforms in accordance with the steps of the bodyline installation procedure, making basic patterns with draping techniques, and developing draping patterns into party dresses. This was evident in the results of learning draping patterns which were still less than optimal. In addition, limited time for practicums and a lack of learning resources that were easily accessible to students to support independent learning at home. During the learning process, they usually only watched the lecturer demonstrate how to make draping patterns. As a result, when given assignments, many students had difficulty understanding the material because there were no supporting media available to review the learning at home.

Based on a needs analysis conducted by 66 students, 88.25% of them strongly needed media that could assist them in learning to create draping patterns independently. Meanwhile, a needs analysis conducted by four lecturers teaching draping courses revealed that 90.5% of them strongly needed media that could assist them in learning to create draping patterns.

The second stage of the ADDIE development model is design. At this stage, initial design and media storyboarding are carried out based on the selection of materials appropriate to competencies and the development of the web and software to be used in QR code-based web development. In this study, the primary software used was Google Sites. Google Sites is one of Google's platforms for creating websites easily. Additionally, the use of Canva, Corel Draw, and Photoshop also assisted in designing the images on the media.

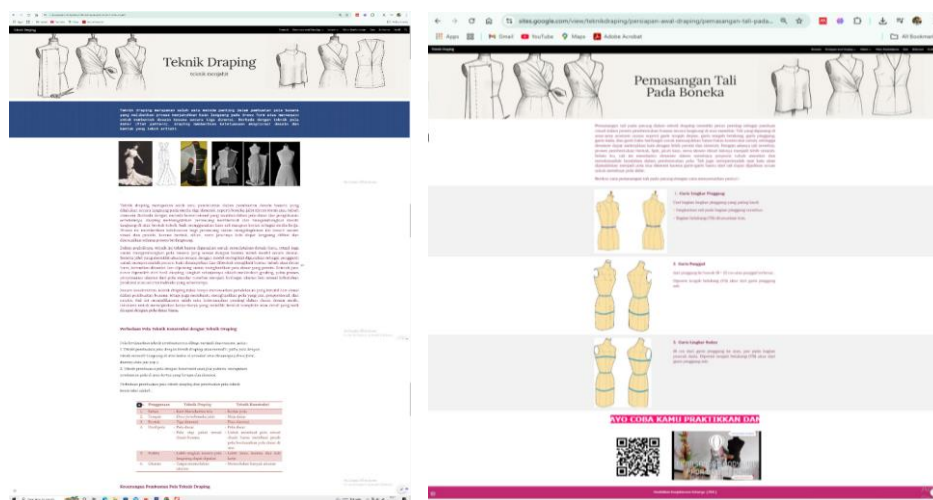


Figure 1. Web View

The web page is equipped with a home page, initial draping preparation, materials, learning videos, quizzes, references, and about me. The home page contains a brief explanation of the concept of draping pattern techniques. Initial draping preparation explains the materials and tools needed, as well as the preparations that need to be done before making a draping pattern. The material display is equipped with material on making basic front and back body patterns using draping pattern techniques, as well as material on developing draping patterns for party wear. Each material is equipped with a QR code that directs students to learning videos. The web page is also equipped with multiple-choice quizzes and cases that must be worked on by students to see their knowledge of children's clothing. The web can be accessed at <https://sites.google.com/view/teknikdraping/beranda>.

During the development phase, web-based learning media was designed and created. The developed media was then validated by subject matter and media experts to assess the suitability of its content, design, and functionality. This validation process aimed to ensure that the learning media met quality standards and could be effectively implemented in the draping pattern learning process. The subject matter expert validation results covered aspects of learning, presentation, and language.

Table 3. Material Expert Assessment

Aspect	Indicator	Respondents		Total Score	$\bar{X}$
		V ₁	V ₂		
Compliance of Material with RPS	The material is in accordance with the core and basic competencies listed in the RPS	5	5	10	5
	Materials support the achievement of learning objectives	4	5	9	4,5
	The material covers all relevant topics.	4	4	8	4
Completeness and Depth of Material	The level of depth of the material is according to the level of the students	4	5	9	4,5
	Scientific Accuracy and Truth				
	The information and concepts presented are scientifically correct.	5	4	9	4,5
Language and Presentation of Material	There are no conceptual errors or misleading information.	5	5	10	5
	The language used is clear, standard and easy to understand.	4	4	8	4
	The material is presented systematically and logically	5	4	9	4,5
Relevance of Media to the Learning Process	The material in the media supports effective learning of draping patterns.	5	5	10	5
	There is a harmonious connection between text, images and/or videos	4	5	9	4,5
Average Total Amount (Σ)					45,5
Percentage (P)					91%

From the above aspects, it can be seen that there are 10 assessment indicators based on 5 aspects of assessment by material experts. Based on the assessment results by two material experts, 91% were found to be very valid. This means that the material presented in the media can be used for teaching draping patterns. Media validation was conducted by two experts competent in the field of learning media development. The purpose of this validation process was to assess the feasibility of the developed web-based learning media.

The assessment covered several key aspects, namely interface design, navigation and interactivity, accessibility, and the media's suitability for the learning objectives and context.

Table 4. Media Expert Assessment

Aspect		Indicator	Respondents		Total Score	$\bar{X}$
			V ₁	V ₂		
User Interface Design		The media display is attractive and in accordance with learning objectives.	4	5	10	5
		The layout of menus, texts and images is neat and easy to access.	4	5	9	4,5
Navigation and Interactivity		Navigation is easy to understand and use by users	5	5	10	5
		There are interactive features that support user involvement	5	5	10	5
Accessibility and Connectivity		Media can be accessed smoothly through QR Code scanning.	5	5	10	5
		Fast loading times and do not interfere with the learning experience	4	4	8	4
Suitability of Media to Learning Materials		Media supports the delivery of draping pattern material visually and interactively.	4	5	9	4,5
		Media according to the characteristics and needs of students	5	4	9	4,5
Technical Quality and Functionality		No errors were found during execution (bugs, broken links, etc.)	5	5	10	5
		Media works optimally on various devices (mobile phones, tablets, laptops)	4	4	8	4
Average Total Amount (Σ)						47,5
Percentage (P)						95%

The data above shows that the assessment results from two media experts obtained a 95% rating as highly valid. This supports the use of QR code-based web media with a case study approach to assist in learning draping pattern creation.

The implementation phase began with small, medium, and large group trials. Nine students conducted the small group trial, 18 students conducted the medium group trial, and 66 students conducted the large group trial. The trials were conducted to gauge student responses to the QR code-based web media using the case study approach.

Tabel 5. Student responses based on the results of small, medium and large group tests on web-based media

Trials	Total of Students	Number of Statements	Average Total Score	Average per Student
Small scale	9	15	50,11	3,34
Medium Scale	18	15	51,61	3,44
Large Scale	66	15	50,48	3,37

The average student score on all scales ranged from 3.34 to 3.44, indicating that the majority of students gave a "Good" to "Very Good" rating to the learning media used. From the results of student responses, it can be seen that the media is easy to access and understand by students, the case method approach encourages students to think critically and contextually about the material and the visual and interactive components in the web media strengthen students' understanding of engineering, especially in making practical draping patterns. Based on these results, QR code-based web media with a case method approach has proven to be feasible and effective for use in learning draping pattern making. Student responses showed good acceptance, and the analysis confirmed that their perceptions of the ease, clarity, and usefulness of the media were very positive.

An effectiveness test was conducted to assess the effectiveness of QR code-based web media using a case study method. The test was conducted on 66 fourth- and even-semester students of the Fashion Design Education Study Program. The instruments used were a pretest and posttest, each consisting of questions that measured the students' technical skills in creating draping patterns.

Table 6. Average Pretest and Posttest Scores of Students

Test Types	Average score
Pretest	51,8
Posttest	83

The table shows an average increase of 31.2 points after implementing the developed learning media. Furthermore, to determine the effectiveness of learning, an analysis of learning outcomes was conducted using the Normalized Gain (N-Gain) formula:

$$N - Gain = \frac{83 - 51,8}{100 - 51,8} \approx 0,65$$

According to Hake's (1999) classification, an N-Gain value of 0.65 falls into the moderate category.

Table 7. Distribution of Student N-Gain Categories

Category N-Gain	Value Interval	Total of Students	Percentage
High	$\geq 0,70$	21	31,8%
Medium	0,30 – 0,69	40	60,6%
Low	$< 0,30$	5	7,6%
Total		66	100%

The table above shows that the majority of students (60.6%) experienced moderate improvement, while 31.8% showed high improvement, and only 7.6% fell into the low category. The moderate N-Gain value (0.65) implies that while the web-based media substantially enhanced students' understanding, several factors constrained optimal results. Some students experienced limited internet connectivity and varying levels of digital literacy, which may have hindered consistent participation. Furthermore, draping is inherently a complex psychomotor skill requiring repetitive, hands-on practice that digital media cannot entirely replicate. Differences in motivation and learning discipline among students might also have contributed to the outcome.

Comparatively, the findings are consistent with studies by Azmi et al. (2020) and Supriyanto (2020), which reported N-Gain values of 0.60–0.68 in web-based learning for technical and practical subjects. In contrast, Dewi et al. (2024) achieved higher effectiveness (N-Gain > 0.7) through extended, project-based learning with continuous feedback. These comparisons indicate that duration, repetition, and feedback intensity significantly influence learning effectiveness in psychomotor-oriented digital instruction

However, the N-Gain analysis of 0.65, indicating a moderate category, revealed that the QR code-based web media used in learning draping pattern making using the case method approach significantly improved students' understanding and technical skills. This media allows students to access the material independently, in a structured, and contextual manner, while the case method approach encourages problem-solving based on real-life cases. Compared to conventional learning, this strategy proved more effective because it encourages active and collaborative learning, provides easy access to material across time and space, and provides more easily understood visualizations and explanations. This finding is in line with previous research (Azmi et al., 2020) and (Supriyanto, 2020), which found that the use of web-based digital media can improve student learning outcomes and motivation.

The results of this study indicate that QR Code-based web media developed using the case method approach has proven effective in improving students' abilities in the draping pattern creation process. The media was developed using the ADDIE (Analysis, Design, Development, Implementation, Evaluation) development model, which is considered appropriate because it can help design learning systematically and efficiently (Branch, 2009).

The media validation process was conducted by two experts: a material expert and a media expert. The validation results showed that the learning media received a score of 91% from the material expert and 95% from the media expert, both of which fall into the very valid category. This validity indicates that the developed content meets the eligibility criteria in terms of content, presentation, and learning media technique (Arsyad, 2015).

In addition to the validity aspect, student responses to the learning media showed an average score of 3.44 (good category). Students gave positive responses to the media's ease of use, clarity of material, and usefulness in supporting the learning process. The use of QR codes facilitates quick access to materials, video tutorials, and other supporting documents via mobile devices. This aligns with research by Majid et al. (2021) which states that QR codes can increase the efficiency of access to digital-based learning information.

The case study method used in presenting the material also plays a crucial role in encouraging student engagement in learning. Students are challenged to analyze real-life cases related to draping pattern creation, then seek solutions based on conceptual understanding and hands-on practice. This method empowers students not only as recipients of the material but also as decision-makers within the learning context. This aligns with Majeed's (2013) view that the case study method can develop critical thinking, problem-solving, and decision-making skills.

Students' ability to create draping patterns before and after using the media also showed significant improvement. The N-Gain analysis showed an average score of 0.65, which is in the moderate category (Hake, 1999). This score indicates that learning with QR Code media can improve students' competency in both technical skills and conceptual understanding related to draping techniques.

Thus, the learning media developed is not only suitable in terms of design and content, but is also able to create a learning experience that is more interactive, flexible, and relevant to the needs of students in fashion design practice.

CONCLUSIONS AND RECOMMENDATION

Based on the results and discussion of the research on the effectiveness of QR code-based web media with the case method approach, it was concluded that QR Code-based web media was developed using the ADDIE development model. Validation was carried out by two experts, namely material expert validation and media expert validation. The results of the material expert validation obtained 91% in the very valid category. While the results of the media expert validation obtained 95% in the very valid category. These data indicate that the development of QR Code-based web media with the case method approach is suitable for use in draping learning. The results of student responses an average of 3.44 indicates that the majority of students gave a good assessment of the learning media used. Student responses showed good acceptance, and statistical analysis confirmed that their perceptions of the ease, clarity, and usefulness of the media were very positive.

QR Code-based web media designed using a case study approach proved quite effective in improving students' draping pattern creation skills, with an average N-Gain of 0.65, in the moderate category. Although several constraints, such as limited internet connectivity, varying levels of digital literacy, the draping course being essentially a psychomotor skill requiring repeated hands-on practice that cannot be fully replicated by digital media, and differences in student motivation and learning discipline influenced these results, the moderate N-Gain value still indicated significant learning progress. Therefore, it can be concluded that QR Code-based web media using a case study approach can help students improve their draping learning. Based on the discussion of the research findings, the researchers offer several suggestions for improvement in future research. For future research, the media could cover a wider range of topics. The website should be enhanced with animations to make it more engaging.

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