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Implementation of Digital Learning Media to Improve Student Learning Outcomes on Dry Skin Care Material

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Abstract
The rapid advancement of digital technology has significantly transformed the education sector, including the field of cosmetology and skin care. This study aims to review the implementation of digital learning media in improving students' learning outcomes on dry skin care materials. The review was conducted by analyzing 15 scientific articles, consisting of 10 international and 5 national journals published between 2016 and 2025. The findings reveal that digital learning media such as interactive videos, e-learning modules, mobile learning applications, and virtual simulations, consistently enhance students' conceptual understanding, practical skills, and learning motivation. Digital based learning fosters a more flexible, interactive, and student centered learning environment, leading to better knowledge retention and clinical performance. However, its effectiveness highly depends on the quality of instructional design, technological infrastructure, and instructors' ability to integrate digital tools into teaching. This review recommends adopting a blended learning model that combines digital media with hands on laboratory practice and developing contextually relevant learning content. Therefore, digital learning media can serve as an innovative strategy to improve students' learning outcomes, particularly in mastering dry skin care competencies.

Keywords: digital learning media, learning outcomes, dry skin care, students, blended learning

INTRODUCTION

The development of information and communication technology over the past decade has driven significant changes in education systems worldwide, including in vocational and health education. The integration of digital learning media is one innovation that can address the challenges of 21st-century learning, namely the need for interactive, flexible, and student-centered learning processes. In the context of cosmetology and skincare education, the application of digital media offers significant opportunities to enhance student skills, particularly in subjects that require both theoretical understanding and practical skills, such as dry skin care.

Dry skin (xerosis cutis) is a common condition in skincare practice, and its management requires an understanding of skin anatomy, skin barrier function, and proper emollient product application techniques. Students in cosmetology programs need to master these theories and clinical skills to provide professional care. However, traditional learning, which relies on lectures and live demonstrations, is often ineffective due to limited practical time, varied learning experiences, and the difficulty of independent review of material. Therefore, more innovative learning strategies are needed, one of which is the use of digital learning media (Dunleavy et al., 2019; Verheijden et al., 2021).

Digital learning media is defined as information technology-based tools designed to support the teaching and learning process through the presentation of interactive, audio-visual, and network-based content (Ryan et al., 2022). These tools come in various forms, ranging from interactive videos, mobile learning applications, web-based e-learning, to virtual simulations based on virtual reality

technology. According to Martinengo et al. (2024), the use of digital media can increase learning motivation, facilitate self-directed learning, and strengthen long-term retention. The main advantage of digital media is its ability to provide contextual learning experiences, allowing students to visually observe skin care procedures and review material whenever needed.

In nursing and health education, various studies have shown that digital-based learning can significantly improve learning outcomes compared to conventional methods. Research by Lee et al. (2016) revealed that the use of mobile-based videos improved students' understanding of clinical procedures because they allowed them to review important steps before practice. Similar results were found by Rouleau et al. (2019), who demonstrated that e-learning positively contributed to improved patient care competency and the efficiency of the learning process. Chen et al. (2021) added that mobile learning provides students with significant flexibility to learn outside of class and adapt to their individual learning pace.

In the field of beauty and skincare, Astuti (2020) demonstrated that the use of interactive multimedia in a facial skincare course increased student engagement and cognitive and psychomotor learning outcomes. A similar study by Fauzani and Ampera (2023) developed a learning video media integrated with a group learning strategy, which proved effective in improving students' understanding and skills in facial skincare. Furthermore, research by Zulfiani and Sugiyono (2020) emphasized the importance of technology-based interactive media in teaching facial care tool competency for vocational students. These results indicate that a digital approach not only increases learning motivation but also facilitates students' understanding of technical and visual procedures.

In a national context, several studies support the effectiveness of digital media in the field of beauty and skincare. Qomadza Harista et al. (2020) demonstrated that e-learning modules effectively improved student learning outcomes and motivation in a facial skincare course. Tobing et al. (2020) added that interactive learning media with visualizations of makeup ornaments can foster students' interest in learning and creativity. Jayanti et al. (2025) developed Canva-based interactive learning multimedia that was deemed practical, engaging, and easy for students to use. Meanwhile, research by Fairaz Haya Sriashita et al. (2025) emphasized the importance of validation by media experts to ensure the quality of digital learning and ensure it meets students' needs. In general, findings from various national studies indicate that digital media has great potential for adaptation to the context of learning about dry skin care.

Despite ample evidence supporting the effectiveness of digital media, its implementation still faces several challenges.

METHOD

This article was compiled using a systematic literature review approach focused on the application of digital learning media to improve student learning outcomes in dry skin care. The literature search process was conducted by adhering to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) principles to ensure accuracy and transparency in source selection.

The source search was conducted through several academic databases and repositories, such as Google Scholar, PubMed, IEEE Xplore, ScienceDirect, and the Garuda portal, with publications spanning from 2016 to 2025. Keywords used in the search included: digital learning media, e-learning, mobile learning, interactive video, virtual simulation, skin care education, and their Indonesian equivalents such as digital learning media, online learning, and dry skin care.

Inclusion criteria included empirical research articles or reviews that discussed the application of digital media in health, nursing, or beauty cosmetology education and measured its impact on student learning outcomes, motivation, or skills. Articles that were not relevant to the educational context or did not include learning outcomes as a primary variable were excluded from the analysis. After the selection process, 15 articles were obtained, consisting of 10 international journals and 5 national journals, in accordance with established standards.

Data from each article was then analyzed descriptively and thematically to identify patterns of findings, the types of learning media used, and their impact on learning outcomes. The analysis process was carried out by grouping study results based on media type (interactive video, mobile learning, e-learning, virtual simulation) and learning context (health or beauty). The results were then compared to identify similarities, differences, and theoretical contributions of each study. This approach enabled the authors to compile a comprehensive synthesis regarding the effectiveness of digital learning media

in improving student competency, specifically in the topic of dry skin care.

RESULT AND DISCUSSION

A review of 15 articles from 10 international journals and 5 national journals indicates that the implementation of digital learning media has a consistent positive impact on improving student learning outcomes in the fields of health, nursing, and beauty. Various types of media developed, such as e-learning, mobile learning, interactive videos, and virtual simulations, have been shown to strengthen students' conceptual understanding, practical skills, and learning motivation. These findings demonstrate that digital technology functions not only as a visual aid but also as an active, independent, and student-centered learning environment.

Types of Digital Media Used

In general, four main types of digital media are found in the literature: (1) interactive video, (2) web-based learning (e-learning), (3) mobile learning, and (4) virtual simulations or virtual reality (VR). Research by Dunleavy et al. (2019) and Martinengo et al. (2024) indicates that digital media plays a significant role in increasing learning flexibility and providing rapid feedback to students. Meanwhile, Lee et al. (2016) found that mobile learning-based videos were effective in deepening the understanding of clinical procedures because students could review the practical steps whenever needed.

In the field of dermatology and aesthetics, Verheijden et al. (2021) developed a dermatology e-learning program that was positively appreciated by participants for its ability to explain skin cases realistically through images and animations. This demonstrates that digital-based media can clarify visual understanding of skin symptoms, including dry skin conditions, which have varying manifestations. Research by Astuti (2020) on facial skin care courses also found that the use of interactive multimedia increased student engagement and psychomotor learning outcomes, as visual content helped them understand detailed treatment steps.

Impact of Digital Media on Student Learning Outcomes

The majority of studies show significant improvements in three main aspects of learning outcomes: knowledge, skills, and motivation. In the knowledge aspect, digital learning helps students understand concepts more deeply through interactive and repetitive presentations. Rouleau et al. (2019) and Chen et al. (2021) reported that e-learning and mobile learning can improve knowledge test results compared to conventional learning. Students who utilize digital media have higher concept retention because they can learn at their own pace and time.

In terms of practical skills, video media and virtual simulations have been shown to have a significant impact. Research by Ryan et al. (2022) found that immersive technologies such as virtual reality provide immersive learning experiences that mimic real-life situations. Students can practice performing clinical procedures without risk to patients. In the context of dry skin care, similar models can be used to practice recognizing skin types, applying skin care products, and even consulting techniques with clients.

Regarding motivation and learning attitudes, a study by Fauzani and Ampera (2023) showed that video media designed with a study group strategy increased student active participation and fostered self-confidence. Similarly, Qomadza Harista et al. (2020) reported that interactive e-learning modules can foster independent learning and improve students' cognitive and affective learning outcomes.

Integration of Technology and Learning Design

The effectiveness of digital media is highly dependent on the quality of instructional design. Several studies emphasize the importance of developing content that adheres to active and constructivist learning principles. Zulfiani and Sugiyono (2020) highlight the importance of an easy-to-use user interface and systematically organizing material to avoid cognitive overload. Martinengo et al. (2024) add that the use of spaced repetition and microlearning has been proven effective in increasing long-term retention, especially for material with technical details such as skin anatomy and hydration mechanisms.

In beauty education, Jayanti et al. (2025) developed Canva-based multimedia learning that emphasized visual aspects and interactivity. As a result, students were more enthusiastic about

participating in the learning process because the media was considered engaging and relevant to the modern beauty industry. This reinforces the view that aesthetically pleasing and contextual digital media has great potential to improve learning outcomes in fields that emphasize practical skills.

Implementation Challenges

While the benefits of digital media are clear, their implementation is not without challenges. Chen et al. (2021) noted that internet access and device availability are major obstacles, especially in areas with limited infrastructure. Furthermore, teaching staff's readiness to use technology varies. Research by Fairaz Haya Sriashita et al. (2025) emphasized the importance of validation by media experts and lecturer training to ensure that the developed learning media meets pedagogical and technical standards. Without adequate training, digital media can lose its educational value and become merely a means of entertainment.

Time constraints and curriculum load also hinder digital media integration. In the context of skin care, digital learning should not completely replace direct practice, but rather serve as a complement that enriches students' learning experiences. Therefore, a blended learning approach is considered the most ideal. Dunleavy et al. (2019) and Ryan et al. (2022) demonstrated that a learning model combining digital media with face-to-face sessions yielded better results than using either method alone.

Implications for Dry Skin Care Learning

Dry skin care requires high analytical and practical skills. With the help of digital media, students can visualize skin conditions, understand the causes of dryness, and learn product application procedures more effectively. Astuti (2020) and Verheijden et al. (2021) emphasized that image-based and simulation-based learning helps students recognize variations in skin conditions and determine appropriate treatment options. Furthermore, mobile learning allows students to access treatment guides outside of class, making learning more flexible and sustainable.

The use of digital media can also support project-based learning, where students are asked to create their own demonstration videos or dry skin care modules. This approach not only improves technical skills but also fosters creativity, collaboration, and communication skills—competencies that are highly sought after in the modern beauty industry.

Overall, the review results indicate that the implementation of digital learning media contributes positively to improving student learning outcomes in various contexts, including dry skin care. Key success factors include (1) quality interactive and academically valid media design, (2) adequate technological infrastructure support, and (3) instructor readiness to utilize technology pedagogically. Findings from international and national research demonstrate alignment, namely that digital media can strengthen students' cognitive, affective, and psychomotor aspects when implemented with the right approach.

Thus, the integration of digital learning media in beauty education not only supports learning innovation but also prepares students for technology-based industry transformation. Moving forward, the development of digital learning media needs to be directed toward a more personalized, adaptive, and contextual approach to accommodate students' increasingly diverse learning needs.

CONCLUSION

Based on a review of 15 articles published in 10 international journals and 5 national journals, it can be concluded that the consistent implementation of digital learning media has a positive impact on improving student learning outcomes, particularly in the context of learning in the field of beauty and dry skin care. Digital media has been proven to not only enrich the learning process but also strengthen mastery of theoretical concepts, practical skills, as well as student motivation and engagement in the learning process.

The most commonly used media types include e-learning, mobile learning, interactive videos, and virtual simulations. Each form of media provides a different contribution according to the characteristics of the learning material. E-learning supports independent and flexible learning; mobile learning allows students to learn anywhere and anytime; while interactive videos and virtual simulations provide concrete and realistic visual experiences, which are highly relevant to the practical nature of skin care material.

Findings from various studies indicate that digital media improves learning outcomes in three

main aspects: knowledge, skills, and motivation. Students demonstrate improved theoretical understanding, procedural skills, and enthusiasm for participating in learning. Furthermore, digital media also strengthens reflective and collaborative skills by enabling students to independently evaluate their own learning outcomes through automated feedback or interactions within the learning platform.

However, the effectiveness of digital media depends heavily on the quality of the design and the preparedness of the instructor. Media that is interactive, academically valid, and aligned with learning objectives produces far more significant results than media that merely serves as a supplement. Supporting technological infrastructure, the instructor's ability to manage digital media, and adapting content to student characteristics are also determining factors for successful implementation.

Overall, digital learning media plays a crucial role in shifting the learning paradigm from teacher-centered to student-centered. In the context of dry skin care, the application of digital technology enables students to understand theory and practice in an integrated, efficient, and contextual manner. The results of this review confirm that the use of digital media is not merely a technological innovation but also a pedagogical strategy capable of improving the quality of learning and student competency in the modern education era.

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