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Video vs Image: Roles in Fashion Students' Practicum Learning

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Abstract

In fashion practicums, lecturers generally use learning media for students to help them quickly grasp the material being explained. However, the role of the chosen learning media is often overlooked. Furthermore, this study examined the roles of video tutorials and technical illustrations with images used by fashion students in sewing practicum courses, focusing particularly on the operation of four-thread overlock machines. With a case study and qualitative approach, the researchers explored in-depth data by conducting interviews with fifteen fashion students and observing them operating four-thread overlock machines during the sewing practicum course at the university. Using a thematic analysis, this study found that video tutorials effectively contribute specifically to the learning of fashion students with visual learning styles. On the other hand, technical illustrations with images are effective in facilitating the learning of fashion students with auditory learning styles. In conclusion, lecturers should consider the characteristics of their students when providing learning media, so that those media can be tailored to help achieve learning objectives optimally and facilitate the understanding of media users more efficiently.

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INTRODUCTION

Fashion-related courses are often conducted to shape students' career development (Quintero-Rodriguez et al., 2025) through practical activities (Ferns et al., 2021), in which students are assigned to create their own project work (Frazier & Cheek, 2005). To put their fashion ideas into practice and promote innovation, those fashion students have to know how to operate all support machines for fashion production (Rahaman et al., 2024; Shah & Agarwal, 2024). However, those students need some time to achieve complete mastery of the operation of those machines and to adapt to them (Asplund et al., 2022). During the learning process, lecturers demonstrate how to run the machines, and they also use learning media (Kwon, 2022) by way of support to support students' process of understanding the effective operation of the machines (Brame, 2016; Prasetyo et al., 2024). In fashion practicum courses, learning media are used by lecturers to help students operate the two most frequently used machines, namely straight stitch sewing machines and overlock machines. Straight-stitch sewing machines employ only a single thread, thereby enabling fashion students to understand the thread insertion process relatively quickly.

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Nowadays, learning media used by fashion lecturers, in addition to being tailored to the needs of fashion students, also keep pace with the latest advancements in fashion technology (Vladimirova et al., 2024). A number of those learning media are deemed to be effective in simplifying the process of fashion practicum processes (Son et al., 2019). Frequently used learning media include video tutorials and technical illustrations with images (Li et al., 2023; Wati et al., 2024; Yuliarma et al., 2024). Many fashion students favor the two media (Cavanagh & Peté, 2017) because they help the students to understand both the process of creating fashion products and the process of operating fashion manufacturing machines (Rizzi & Bertola, 2025; Sinaga et al., 2023).

While previous studies in fashion and vocational education have broadly evaluated the use of learning media to support sewing technology, the specific instructional challenges associated with operating a four-thread overlock machine remain underexplored. Mutmainnah et al. (2020) showed that video-based IT learning media significantly improved basic sewing skills in vocational students, revealing how multimedia can support procedural learning. Similarly, Maeliah (2019) developed a multimedia instructional video for industrial sewing machine operation that demonstrated high feasibility and strong validation from expert judges. In a project-based R&D context, Hadijah et al. (2022) created video tutorial products specifically for overlock machine operation, buttonhole machine operation, and buttonhole machine operation using the ADDIE model. Gap suggests a critical need for empirical studies that assess how well media-based interventions support students' mastery of overlock-specific skills such as threading loopers, balancing tension, and managing safety.

Although students often refer to video tutorials posted on YouTube channels or to technical illustrations with images hung on the wall in front of the overlock machines by lecturers teaching the practicum course on sewing techniques. However, the roles of both media are unknown currently. Furthermore, to find out the role of these two media in helping fashion students operate a four-thread overlock machine, this research is crucial to conduct. While previous studies have evaluated media use in fashion education broadly, little attention has been paid to the specific challenges of operating a four-thread overlock machine.

The purpose of this research is to elaborate on the roles of video tutorials and technical illustrations with images as references for fashion students in the sewing practicum course, especially when operating overlock machines with four threads. This research sought to answer the following questions as a guideline for the investigation: (1) What is the role of video tutorials in operating overlock machines with four threads by users in the sewing practicum?; (2) What is the role of technical illustrations with images in operating overlock machines with four threads by users in the sewing practicum?

METHOD

Research Design

This is a case study that adopts a qualitative approach to explore research data more deeply, aiming to have a better understanding of the perspective of the individuals interviewed (Lim, 2024). During the research, the researcher conducted interviews and observations to collect in-depth data on two learning media, namely video tutorials and technical illustrations with images, used during sewing practicum courses. The data obtained from the two data collection techniques were necessary to know the contributions of video tutorials and technical illustrations with images prepared by lecturers to help fashion students operate overlock machines with four threads.

The video tutorial, which is accessible by clicking the link https://youtu.be/H1nkC5W1OCw, used as a learning medium in this research, is shown in Figure 1; meanwhile, the technical illustration with images provided by the lecturer is shown in Figure 2.

Figure 1. Illustration of the Video Tutorial Content with a Caption

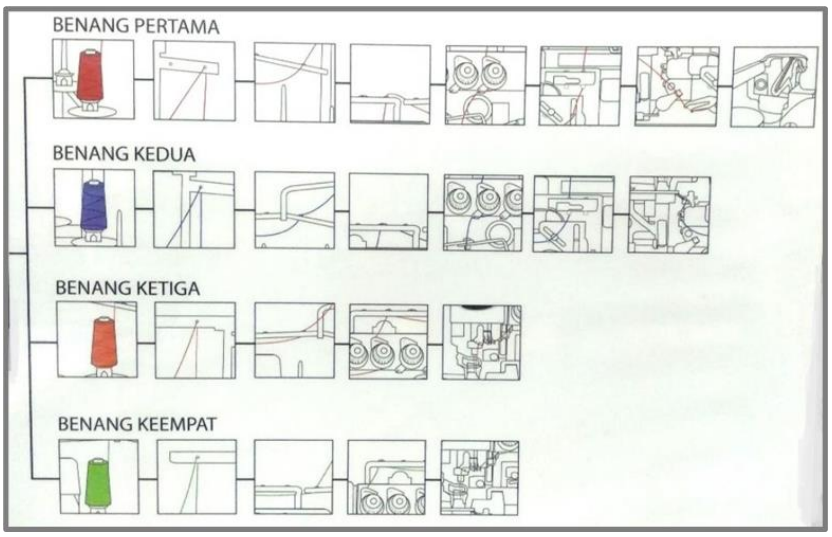

Figure 2. Technical Illustration with Images Used in This Research

Participants

This study was conducted with all fashion students participating in a semester-long sewing practicum course. Fifteen of these students were involved in interviews and observations. The selected students shared similar backgrounds: they were fashion students who had graduated from Senior High Schools, had taken the course on basic sewing techniques, and had referred to tutorial videos and technical illustrations with images when operating overlock machines with four threads provided by the practicum lecturer. The participants were allowed to choose one of the two learning media: video tutorials or technical illustrations with images. Consequently, the participants were classified into two groups: a group of seven participants who used video tutorials and a group of eight participants who used technical illustrations with images.

To ensure participants' confidentiality, the researcher utilized pseudonyms and some codes representing the participants, which were unrelated to their academic achievements. This was taken solely to facilitate the analysis process of the data on fashion students' perspectives about the use of video tutorials and technical illustrations with images during the operation of overlock machines with four threads in fashion practicum courses at the universities.

Interview Guideline

To achieve the research objectives, the researcher developed a research guideline by conducting open-ended interviews to obtain in-depth data on the perspective of interviewees. To elicit more comprehensive data, the researcher also addressed follow-up questions in response to

participants' answers. Probing questions, such as 'why', 'how', and 'what', were used to elicit detailed information from participants (Robinson, 2023).

The researcher initiated the interviews with simple questions to establish a pleasant, relaxed atmosphere for the participants, thereby alleviating concerns that their responses might adversely impact their academic performance. The simple opening questions included: "How are you today?" "What do you feel about participating in this study?" and 'Would you be willing to spare some time to answer my questions?' These questions were then followed by research-related questions like "Did you experience any issues with the overlock machines during today's practicum course? What issue did you face?" "What did you do to tackle the issue?" "Of the two learning media provided by your lecturer, which one is easier for you to understand? Video tutorials or technical illustrations with images?" Additionally, follow-up questions were posed to participants to probe more detailed information relevant to the research objectives.

Data Collection

This research was conducted in four sessions of a one-hour sewing practicum course, during which the researcher held interviews with research participants and made observations on them. The data in this research were obtained from interviews and observations. The observations were made for as long as fashion students operated four-thread overlock machines in the sewing laboratory, while the interviews were held after the session in the laboratory.

During the data collection process, the researchers took the following steps of data collection, documentation, and recording: 1) The researcher observed participants' process of operating four-thread overlock machines and then conducted interviews with those participants on the use of video tutorials and technical illustrations with images during the process of four-thread overlock machine operation; 2) The researcher documented the results of the interview with participants and observed the participants using video tutorials and technical illustrations with images on a four-thread overlock machine during machine operation. The researcher then interpreted the data collected and described the results based on documentary data for further analysis; 3) Notes were coded to facilitate more detailed analysis.

Data Analysis

The researcher performed a thematic analysis to explore two main themes addressed in this research, namely the role of video tutorials and technical illustration in four-thread overlock machine operation. Based on participants' answers during the interview sessions with the support of observation results, this research found out concrete facts about the use of video tutorials and technical illustrations with images on the four-thread overlock machine operation in sewing practicum courses.

Codes were used to facilitate the data analysis process and to anonymize the participants' names to protect their privacy and confidentiality. Participants were assigned codes STD_1 to STD_15, corresponding to fashion students 1 to 15; the codes INT and OBS were used to represent interviews and observations, respectively. In this regard, the code STD_1_INT_26052024 specifically represents the data obtained from an interview with fashion student 1, which was conducted on May 26, 2024. These codes have been used since the beginning of data collection.

The researcher received a six-month extension for data reliability and validity by analyzing and rechecking the original data obtained from interviews with participants. In addition, the extension was also given to the observation of the roles of video tutorials and technical illustrations with images in practicum courses in the next semester. By way of illustration, fashion students attend fashion practicum courses every semester at different levels. This means that the lecturer observes the behaviors of the same participants from one semester to the next semester (from semester 2 to semester 3), with the focus of the observation being specifically on the participants' use of video tutorials and technical illustrations with images on a four-thread overlock machine operation.

The researcher conducted FGDs to make observations, stimulate discussions, and assess fashion students' performances on the use of the two learning media to help them operate four-thread overlock machines. In this stage of analysis, the researcher avoided making subjective analyses and carried out rigorous and objective evaluations by referring to data sources and spatial and temporal contexts in which the data were documented.

RESULTS AND DISCUSSION

The following paragraphs will describe in detail the roles of both video tutorials and technical illustrations with images on the four-thread overlock machine operation used by fashion students in fashion practicum courses. To facilitate a clear understanding, the roles of both learning media will be discussed separately as follows.

The Role of Video Tutorials

Seven students (STD_1 to STD_7), who used video tutorials often mentioned two words during the interview sessions, and they performed two similar actions during the observation. This finding can be seen in Figure 3.

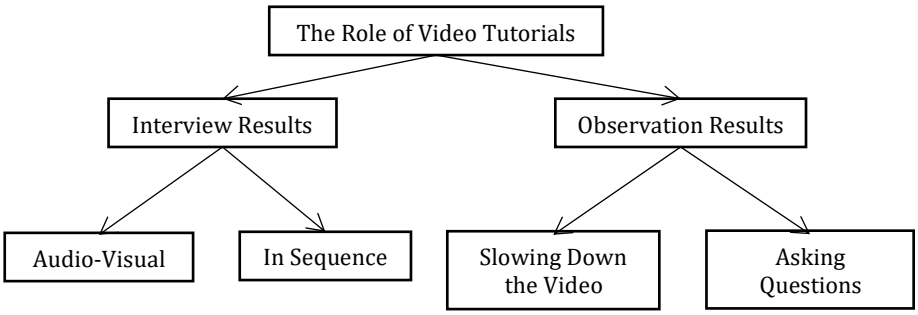

Figure 3. Keyword Findings in Video Tutorials Usage

The interviews with the seven students during the practicum session revealed that those students frequently mentioned two words: "audio-visual" and "in sequence", which the researcher noted as follows.

"*Going through video tutorials on how to insert threads into four-thread overlock machines is immensely helpful in sewing practicum courses for some reasons, one of which is that students have first-hand experience of operating the overlock machine shown on the video. The video also presents a clear and sequential explanation. Besides, it also provides accompanying written text which gives step-by-step instructions, thereby making the process of operating a four-thread overlock machine easier for students (STD_1, STD_5, and STD_6). Moreover, videos can be paused and resumed in accordance with the step that students are taking. Nevertheless, pausing a video needs a good degree of accuracy; otherwise, students will view a blurred image on the screen and have to rewind the video for a clearer view (STD_1, STD_2, STD_4, and STD_7). In sum, the video played during the practicum successfully provides fashion students with clear and detailed instructions as to how to insert threads into the proper paths of the four-thread overlock machine, particularly when it is accompanied by written texts that make it easier for students to understand the intended meaning of the video. The fact that the video and its accompanying text were prepared by the lecturer is the key factor behind the ease with which fashion students can operate a four-thread overlock machine effectively because the lecturer knows the characteristics and needs of the students (STD_2, STD_3, STD_4, STD_6, and STD_7).*"

From the observation of the performance of participants using video tutorials, the researcher wrote as follows.

"Music in the background of the video seems to increase students' learning motivation. The music helps relieve the boredom of the learning process because it creates a relaxed atmosphere during the learning process, hence making students feel happy and enthusiastic about the video (STD_1, STD_2, STD_3, STD_4, STD_5, and STD_7). However, some students prefer hearing their teacher's voice while reading the text in the video, which creates a more natural classroom experience.

(STD_1 and STD_2). Conversely, another five participants argue that the insertion of their teacher's voice into the video will make students face two tough choices: either they read the text, or they listen to the lecturer's voice (STD_3, STD_4, STD_5, STD_6, and STD_7)."

The research also revealed that students often pause the video and then resume it. Because the video is a motion picture, they have to pause it to synchronize the speed of the video with their pace. When they are trying to insert a thread into a particular path, for instance, they pause the video at the scene of the step, ensure that they do the insertion exactly as shown in the video, and then resume the video. This pause-and-resume approach is used in nearly every step of the thread insertion procedure. Another fact found in this research is that those students using video tutorials to help them insert threads into four-thread overlock machines tend to ask questions to the lecturer more often than other students. The following is the note on this fact that the researcher took during the interview sessions.

"The video played during the practicum session presents a vivid picture of overlock machines. The lecturer, who serves as the demonstrator in the video, succeeds in establishing such a comfortable atmosphere that the students feel free to ask the lecturer some questions. The clear, vivid picture and the relaxing background music of the video make students feel close to the lecturer despite the absence of the lecturer's voice in the video. Correspondingly, when the lecturer accompanies them in the classroom, they feel comfortable to consult the lecturer about what they do not understand from the video (STD_3, STD_4, STD_6, and STD_7)."

It takes a longer time for fashion students using video tutorials to insert threads into four-thread overlock machines. This results from their pause-and-resume approach when using the video tutorial, and they implement this approach in almost all the steps of the operation. In addition, they spend more time consulting the lecturer about their understanding of the video, and they have to do that alternately.

As regards this time-consuming operation, all fashion students using video tutorials also refer to technical illustrations with images hung before the four-thread overlock machines by way of comparison. Sometimes, they look at the instructions on the thread insertion process in the technical illustrations with images before they resume watching the video. From the observation, the researcher also found that fashion students using video tutorials commit a common mistake, that is, they go through the video tutorial carelessly and ignore some important details. It often happens that they leave a particular guide without inserting threads into it.

The Role of Technical Illustrations with Images

Another eight fashion students (STD_8 to STD_15) chose to use technical illustrations with images to help operate four-thread overlock machines. Often mentioned three words during the interview sessions, and they performed two similar actions during the observation. This finding can be seen in Figure 4.

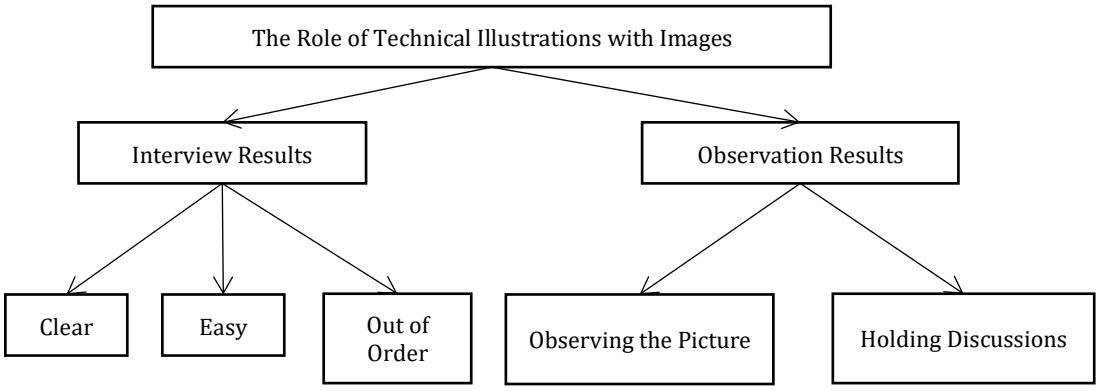

Figure 4. Keyword Findings in the Use of Technical Illustrations with Images

The results of the interviews with fashion students who use technical illustrations with images more often than they do video tutorials can be described as follows.

"The first time they saw the technical illustration with images, fashion students felt confused. Only after they read the caption explaining the order of thread 1, thread 2, thread 3, and thread 4 did they begin to understand the instructions given in the illustration. These students found it easier to operate four-thread overlock machines by referring to the technical illustration because it was not a moving picture (STD_9, STD_11, and STD_15). For this reason, they could begin the insertion from any of those four threads without having to consider the order. In this case, they would choose to insert the easiest thread to be inserted out of order. Additionally, the technical illustration with images made the insertion process easier because each of the paths was displayed in different colors (STD_8, STD_9, STD_10, STD_11, STD_12, STD_13, STD_14, and STD_15).

The observation of fashion students using technical illustrations with images began when they preferred technical illustration over video tutorials as learning media to help them with the process of inserting threads into a four-thread overlock machine. The first step they took was to observe the four-thread overlock machines put in front of them. They then referred to the technical illustrations with images three to five times. Only then did they attempt to insert threads into the overlock machine exactly as depicted in the technical illustration.

This group of fashion students, using technical illustrations with images, was more frequently observed holding discussions with each other than asking questions to the lecturer. STD_10, for example, was observed stimulating a discussion with STD_8 and STD_12 about thread insertion shown in the technical illustration with images, which they were referring to. In fact, all the fashion students choosing to use technical illustrations with images did the same action. Their discussion focused on thread insertion into overlock machines. Through the discussion, they agreed to begin the thread insertion process with the thread with a shorter path instead of the one with a longer path. In this regard, they did not begin the insertion with thread 1, but with thread 4 instead (See Figure 2). Applying this approach, fashion students using technical illustrations with images took a shorter time to insert threads into the four-thread overlock machine than those students using video tutorials.

Another unique characteristic that unlike the other group using video tutorials with images discussed above, fashion students using technical illustrations with images have in common is that they are not interested in going through the video tutorials. They only focused on the illustrations with images provided by the lecturer. The researcher collected this fact in the interview sessions, during which the researcher deliberately played the video in front of those students using technical illustrations with images via their smartphones. The interview result can be described as follows.

"Illustrations with images can be easily understood because we can discuss them with our fellow students. Unlike those video users, who have to understand the tutorial independently, we can help each other to understand what is displayed in the illustrations. Video tutorials cannot draw their attention of fashion students using technical illustrations with images because they consider the technical illustrations with images clear and effective enough to help them carry out the machine operation (STD_13, STD_14, and STD_15). Besides their eagerness to engage in discussions, fashion students using technical illustrations with images believe that the background music of the video may cause an unwanted distraction from the thread insertion process (STD_8, STD_9, STD_10, STD_11, STD_12, STD_13, STD_14, and STD_15). By way of comparison between the two learning media, video tutorials begin the insertion process with thread 1, which has a long threading path. In addition, performing thread insertion with the help of video tutorials means focusing on the video and following every single step demonstrated in it, unless the video is paused. On the other hand, performing thread insertion with the help of technical illustrations with images prevents students from pausing and resuming anything, which saves a large amount of their time (STD_9, STD_10, and STD_13). Unlike video tutorials, technical illustrations with images allow students to insert threads out of order, which means that they can begin the thread insertion with any thread they like (STD_8, STD_10, and STD_15)."

After obtaining research results through interviews, the researchers conduct observations with the same participants in the advanced practicum course in the next semester. The observation result shows that the participants are set in their previous preference for learning media. The last

time they chose their preferred learning media, some of them even forgot to insert threads into the four-thread overlock machines.

Based on the research result, fashion students using video tutorials differ in characteristics from those students using technical illustrations with images. The former tends to adopt the visual learning style, while the latter tends to use the auditory learning style. Details are illustrated in Table 1.

Table 1. The Different Characteristics of the Users of the Two Learning Media

Learning Media	Video Tutorials	Technical Illustrations with Images
Characteristics of Fashion Students	Visual learners	Auditory learners
	Often asking questions of the lecturer	Often holding discussions with fellow students
	Slow decision maker	Fast decision maker
	Slow learner	Fast learner
	Unsure about their own understanding	Analytical by nature

According to Locke et al. (2024), auditory learners are characterized by mutter, a dislike of crowds and noise, keen hearing, good speaking skills, poor writing skills, excellent memory for information, and an exceptional ability to give comprehensive explanations. Therefore, auditory learners tend to enjoy speaking and like interviews (Hosseini & Mehraein, 2022). On the other hand, visual learners tend to adopt a structured learning style and be able to compromise on noise (Satriani et al., 2024). They like speaking fast, do cursory reading, remember visual association easily, and exercise great care. Nevertheless, they cannot express their ideas in good diction, have difficulty understanding direct instructions, so they need to clarify instructions when asked for help. In this way, students with the visual learning style are driven to learn by direct observation. However, some students may have a combination of the learning styles, like the audio-visual learning style or the audio-kinesthetic learning style. According to Busan, (2014) and Hattie & O'Leary (2025), students' learning styles are categorized into the audio learning style, the visual learning style, the kinesthetic learning style, and the combination of all these styles.

Based on the aforementioned explanation, lecturers should be able to identify the characteristics of each of their students and facilitate their learning process by providing them with learning media tailored to their learning styles and needs (Goyibova et al., 2025), thereby positively affecting students' learning outcomes (Abdulrahaman et al., 2020; Bahri et al., 2024; Pascu, 2024). Students who acquire understanding through appropriate learning media will be more likely to understand, complete projects successfully, and feel confident in their knowledge (Indarti et al., 2023).

Moreover, lecturers should provide students with various forms of learning media. This is absolutely challenging for them, but they are obliged to facilitate learning processes as greatly as possible to achieve desired learning outcomes (Battista et al., 2023). Learning media that are provided by lecturers will make a considerable impact on the psychological aspects of their students because the students acknowledge the presence of their lecturer during the learning process (Kandia et al., 2023). In addition, videos as learning media should be accompanied by both texts and audio explanations to accommodate a wider range of students' needs (Schorn, 2022; Weiß & König, 2023). Ultimately, the results of this study contribute to the knowledge base on the use of learning media for students. Lecturers planning to use media to support their learning need to consider several indicators to ensure the media's effectiveness and efficiency. These indicators include student characteristics, content comprehensiveness, and ease of access.

LIMITATIONS

Despite the valuable contributions generated by this study, a limitation must be acknowledged. The video tutorials and technical illustrations with images used in this study were created by the lecturer. Although both have been used for a long time, their feasibility and effectiveness have not been tested. The aim is to ensure the media used have been developed through proper research procedures.

CONCLUSION

Videos and images have their respective roles as learning media in facilitating fashion practicum courses for fashion students at universities. Video tutorials are effective for students with visual learning styles, while technical illustrations with images are more suitable for students with auditory learning styles. Consequently, learning media provided by lecturers should be tailored to the needs and characteristics of students. This is necessary to help achieve learning objectives optimally and facilitate the understanding of media users more efficiently. Besides, lecturers also play a significant role in designing student-oriented practicum learning by focusing on the building of students' 4Cs skills (communication, collaboration, critical thinking, and creativity) for their brilliant future careers. Looking ahead, future research should explore the impact of video tutorials and technical illustrations with images across different disciplines and professional domains to ensure that their benefits are maximised. Longitudinal studies with larger and more diverse samples will be essential for validating and extending these findings. By addressing these areas, educators can refine learning media used to help students achieve learning objectives.

AUTHOR CONTRIBUTIONS

SZ was responsible for conceptualization, methodology, investigation, data curation, formal analysis, and writing the original draft. HM contributed through supervision, validation, provision of resources, and reviewing and editing the manuscript. DN provided methodological consultation, theoretical support, and contributed to the review and editing process. NML offered an international academic perspective and participated in reviewing and editing the manuscript. All authors have read and approved the final version of the manuscript.

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REFERENCES

Abdulrahaman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., Imam-Fulani, Y. O., Fahm, A. O., & Azeez, A. L. (2020). Multimedia tools in the teaching and learning processes: A systematic review. *Heliyon, 6*(11), e05312. https://doi.org/10.1016/j.heliyon.2020.e05312

Asplund, S.-B., Kilbrink, N., & Asghari, H. (2022). Teaching and learning how to handle tools and machines in vocational educational workshop sessions. *Journal of Curriculum Studies, 54*(6), 809–831. https://doi.org/10.1080/00220272.2022.2033326

Bahri, A., M, W. H., Putra, K. P., Ainun, N. A., & Arifin, N. (2024). The relationship between students' perception to the learning media, digital literacy skills, and self-regulated learning with students' learning outcomes in the rural area. *Journal of Technology and Science Education, 14*(2), 588–606. https://doi.org/10.3926/jotse.2513

Battista, S., Furri, L., Pellegrini, V., Giardulli, B., Coppola, I., Testa, M., & Dell'Isola, A. (2023). Which lecturers' characteristics facilitate the learning process? A qualitative study on students' perceptions in the rehabilitation sciences. *BMC Medical Education, 23*(1), 431. https://doi.org/10.1186/s12909-023-04308-y

Brame, C. J. (2016). Effective educational videos: Principles and guidelines for maximizing student learning from video content. *CBE—Life Sciences Education, 15*(4), es6. https://doi.org/10.1187/cbe.16-03-0125

Buşan, A.-M. (2014). Learning styles of medical students: Implications in education. *Current Health Sciences Journal, 40*(2), 104–110. https://doi.org/10.12865/CHSJ.40.02.04

Cavanagh, M., & Peté, M. (2017). Fashion students choose how to learn by constructing videos of pattern making. *British Journal of Educational Technology, 48*(6), 1502–1511. https://doi.org/10.1111/bjet.12505

Ferns, S. J., Rowe, A. D., & Zegwaard, K. E. (Eds.). (2021). *Advances in research, theory and practice in work-integrated learning: Enhancing employability for a sustainable future* (1st ed.). Routledge. https://doi.org/10.4324/9781003021049

Frazier, B. J., & Cheek, W. K. (2005). Fashion industry career matrix: Encouraging students to explore fashion-related careers. *Clothing and Textiles Research Journal, 23*(4), 375–384. https://doi.org/10.1177/0887302X0502300417

Goyibova, N., Muslimov, N., Sabirova, G., Kadirova, N., & Samatova, B. (2025). Differentiation approach in education: Tailoring instruction for diverse learner needs. *MethodsX, 14*, 103163. https://doi.org/10.1016/j.mex.2025.103163

Hadijah, I., Supadmi Irianti, A. H., Aini, N., Yulianingrum Pradani, R., Sapitra Wahyu Ilyasari, N. I., & Septiana Dwi Anggraini, W. (2022). Development of innovative learning media based on video applications in the introduction to the usage of sewing tools course for fashion students at the State University of Malang. *International Journal of Scientific Research and Management, 10*(4), 840–845. https://doi.org/10.18535/ijsrm/v10i4.ec06

Hattie, J., & O'Leary, T. (2025). Learning styles, preferences, or strategies? An explanation for the resurgence of styles across many meta-analyses. *Educational Psychology Review, 37*(2), 1–26. https://doi.org/10.1007/s10648-025-10002-w

Hosseini, H. M., & Mehraein, S. (2022). Learning styles and task preferences in online language courses: Match or mismatch? *Cypriot Journal of Educational Sciences, 17*(1), 81–94. https://doi.org/10.18844/cjes.v17i1.6683

Indarti, Y., Yulistiana, Wahyuningsih, U., Sari, F. I., & Peng, L. H. (2023). Design and assessment of project-based learning (PjBL) for improving design skill in modest fashion design course. In A. Mustofa, I. Widiyanah, B. K. Prahani, I. A. T. Rahayu, M. Mudzakkir, & C. D. M. Putri (Eds.), *Proceedings of the International Joint Conference on Arts and Humanities 2023 (IJCAH 2023)* (Vol. 785, pp. 1144–1150). Atlantis Press. https://doi.org/10.2991/978-2-38476-152-4_116 Atlantis Press

Kandia, I. W., Suarningsih, N. M., Wahdah, W., Arifin, A., Jenuri, J., & Suwarma, D. M. (2023). The strategic role of learning media in optimizing student learning outcomes. *Journal of Education Research, 4*(2), 508–514. https://doi.org/10.37985/jer.v4i2.193

Kwon, S.-H. (2022). Using videos as a teaching tool in sewing. *Journal of Fashion Business, 26*(1), 105–118. https://doi.org/10.12940/jfb.2022.26.1.105

Li, H., Kong, F., Kong, L., & Chen, T. (2023). Evaluating sewing operation complexity and its influence on sewing operation quality. *Heliyon, 9*(3), e13867. https://doi.org/10.1016/j.heliyon.2023.e13867

Lim, W. M. (2024). What is qualitative research? An overview and guidelines. *Australasian Marketing Journal, 33*(2), 1-31. https://doi.org/10.1177/14413582241264619

Locke, K., Ellis, K., & Wolf, K. (2024). Auditory learner: An examination of changing learning styles and expectations in higher education. *M/C Journal, 27*(2). https://doi.org/10.5204/mcj.3029

Maeliah, M. (2019). Development of video multimedia operational instruction on industrial sewing machine. *In Proceedings of the 5th UPI International Conference on Technical and Vocational Education and Training (ICTVET 2018).* Atlantis Press. https://doi.org/10.2991/ictvet-18.2019.86

Mutmainnah, T., Munoto, M., Marniati, M., & Rijanto, T. (2020). Application of IT-based learning media to improve the basic skills of sewing technology. *International Journal for Educational and Vocational Studies, 2*(3), 263–268. https://doi.org/10.29103/ijevs.v2i3.2439

Pascu, M. (2024). The contribution of students' learning styles to competences development through the use of Kahoot learning platform. *Cogent Education, 11*(1), 2352320. https://doi.org/10.1080/2331186X.2024.2352320

Prasetyo, M. J., Rifelino, R., & Fauza, A. N. (2024). Development and effectiveness of short video tutorials in basic turning learning to enhance students' cognitive ability. *Journal of Engineering Researcher and Lecturer, 3*(3), 159–180. https://doi.org/10.58712/jerel.v3i2.161

Quintero-Rodriguez, C., Panwar, T., Branford, A., & Shabrokh, A. (2025). A scaffolded learning approach to work integrated learning and career development learning in fashion product development in higher education. *International Journal of Fashion Design, Technology and Education, 18*(1), 82–90. https://doi.org/10.1080/17543266.2024.2416050

Rahaman, M. T., Pranta, A. D., Repon, M. R., Ahmed, M. S., & Islam, T. (2024). Green production and consumption of textiles and apparel: Importance, fabrication, challenges and future prospects. *Journal of Open Innovation: Technology, Market, and Complexity, 10*(2), 100280. https://doi.org/10.1016/j.joitmc.2024.100280

Rizzi, G., & Bertola, P. (2025). Exploring the generative AI potential in the fashion design process: An experimental experience on the collaboration between fashion design practitioners and generative AI tools. *European Journal of Cultural Management and Policy, 15*, 13875. https://doi.org/10.3389/ejcmp.2025.13875

Robinson, O. C. (2023). Probing in qualitative research interviews: Theory and practice. *Qualitative Research, 23*(3), 600–619. https://doi.org/10.1080/14780887.2023.2238625

Satriani, S., Syamsuddin, A., & Tamanga, N. (2024). Identification of student learning styles in implementing differentiation learning in Thai Islamic schools. *European Journal of Education and Pedagogy, 5*(1), 31–34. https://doi.org/10.24018/ejedu.2024.5.1.750

Schorn, A. (2022). Online explainer videos: Features, benefits, and effects. *Frontiers in Communication, 7*, 1034199. https://doi.org/10.3389/fcomm.2022.1034199

Shah, V. & Agarwal, S. (2024). Technology innovation holds the key to victory for the fashion industry's bright future. *ShodhKosh: Journal of Visual and Performing Arts, 5*(5). https://doi.org/10.29121/shodhkosh.v5.i5.2024.1964

Sinaga, P. R., Prihantoro, C. R., & Suliyanthini, D. (2023). The effectiveness of digital media in increasing the learning of fashion pattern construction. *Journal of Harbin Engineering University, 44*(7), 1418–1421.

Son, J., Sun, J., & Lee, J. (2019). Interactive learning through social media for large size classes in the clothing and textile curriculum. *International Journal of Fashion Design, Technology and Education, 12*(2), 129–139. https://doi.org/10.1080/17543266.2018.1534002

Vladimirova, K., Henninger, C. E., Alosaimi, S. I., Brydges, T., Choopani, H., Hanlon, M., & Zhou, S. (2024). Exploring the influence of social media on sustainable fashion consumption: A systematic literature review and future research agenda. *Journal of Global Fashion Marketing, 15*(2), 181–202. https://doi.org/10.1080/20932685.2023.2237978

Wati, W. R., Sariyatun, & Sudiyanto. (2024). Advancing fashion design education: Evaluating the eligibility of video tutorial media for basic pattern content in vocational high school. *Journal of Education Research and Evaluation, 8*(3), 452–461. https://doi.org/10.23887/jere.v8i3.76069

Weiß, K., & König, L. M. (2023). Does the medium matter? Comparing the effectiveness of videos, podcasts and online articles in nutrition communication. *Applied Psychology: Health and Well-Being, 15*(2), 669–685. https://doi.org/10.1111/aphw.12404

Yuliarma, Sunarya, Y. Y., Kudiya, K., Rasul, M. S., & Novitra, F. (2024). Model of training learning based on video tutorial for fashion major of vocational education on embroidery course. *Journal of Technical Education and Training, 16*(1), 194–208. https://doi.org/10.30880/jtet.2024.16.01.014