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Need Analysis of The Swedish Massage Pro 3D Animation Learning E-Module Elements for Self-Directed Learning Among Vocational College Students

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ABSTRACT - This study aims to analyse the elements required in the development of the Swedish Massage Pro 3D Animation Learning e-module as a digital teaching aid to facilitate the mastery of Swedish massage techniques among Cosmetology students at Vocational Colleges. Swedish massage is a complex practical skill that requires a strong understanding of physiological concepts, rhythmic consistency, hand coordination, and repetitive step-by-step practice. However, students often face difficulties in mastering massage procedures due to their heavy reliance on lecturer demonstrations, limited access to systematic learning materials, and challenges in memorizing intricate massage sequences. These issues consequently hinder students' self-directed learning and practical skill acquisition in the Body Treatment subject. Therefore, there is a need for a more interactive, flexible, and technology-based learning platform to support vocational students in mastering practical massage techniques effectively. This study employed the Design and Development Research (DDR) approach proposed by Richey and Klein (2007). The current study focuses on the needs analysis phase, which involved two experienced Cosmetology lecturers from Vocational College ERT Setapak. Semi-structured interviews were conducted to identify pedagogical challenges, content requirements, learning preferences, and functional specifications necessary for the development of the 3D animation-based e-module. The findings revealed that the Petrissage technique requires particular emphasis due to its multiple sub-techniques, which frequently confuse students during practical sessions. In addition, the findings indicate that flexible and modular learning content, delivered section-by-section through animated videos, is more suitable for enhancing students' understanding and retention of massage procedures. Both lecturers also emphasized the importance of integrating concise notes, mind maps, quizzes, and interactive multimedia elements into the e-module to support self-directed learning. The development of the Swedish Massage Pro 3D Animation Learning e-module is expected to enhance students' practical skill mastery, improve learning engagement, and support technology-based pedagogy in vocational education.

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INTRODUCTION

Technical and Vocational Education and Training (TVET) plays an important role in producing skilled individuals aligned with industry needs, especially through the 21st Century Learning approach, which emphasizes the use of interactive, flexible, and student-centered learning materials (Ministry of Education Malaysia, 2013). Research indicates that the use of multimedia-based learning resources such as text, visuals, and video can increase the understanding and support self-directed learning, especially in fields involving practical skills (Danil, Wirdati & Darmansyah, 2024; Khalil et al., 2023). Therefore, integrating technology into learning materials is considered necessary to enhance the effectiveness of skill mastery among vocational students.

However, within the context of Cosmetology at Vocational Colleges, the limitations of interactive and self-accessible teaching aids mean that learning still relies heavily on lecturer demonstrations and limited printed materials. The lack of systematic visual resources makes it difficult for students to perform repeated references, thereby hindering self-directed learning (UNESCO, 2022). With this in mind, the present study aims to identify the elements required in developing the Swedish Massage Pro e-module, based on 3D animation, to support the self-directed learning of Cosmetology students at Vocational Colleges.

LITERATURE REVIEW

2.1 21st Century Learning

21st Century Learning places importance on holistic student development through skills such as critical thinking, creativity, collaboration, and communication, while demanding a transformation in pedagogy and the integration of educational technology (Budiarto, Gunarhadi & Abdul Rahman, 2024). In this context, the use of digital learning tools such as e-modules has been found to enhance technological literacy, active engagement, and student understanding of learning content, aligning with student-centered approaches (Damayanti et al., 2024; Hamzah et al., 2020). Similarly, Self-Directed Learning (SDL) also encourages students to plan and control their own learning through flexible access to digital materials, thereby supporting the mastery of practical skills through repetitive learning (Karatas & Arpaci, 2021; Navas-Bonilla et al., 2025).). Therefore, the development of systematic and user-friendly interactive e-modules is essential to support self-directed learning in vocational education.

2.2 Teaching Aids

Teaching Aids play a essential role in supporting the effectiveness of teaching and learning, especially in vocational education which emphasizes practical skills through visualization and demonstration (Bond et al., 2020). The use of digital teaching aids, such as e-modules, has been found to improve student motivation, engagement, and understanding through the incorporate of interactive multimedia elements (Puradimaja & Hamdani, 2022; Nurhikmah et al., 2024). Systematic and flexible e-modules also support self-directed learning by allowing students to access and review content according to their own needs (Setiyawan et al., 2024; Budiarto et al., 2024). Furthermore, the use of animated videos, specifically 3D animation, helps students understand more about the procedures and techniques clearly through realistic visualization, therefore enhancing the mastery of practical skills (Mayer, 2020; Talan, 2020; Debrah et al., 2024; Maulidi, Salim & Utama, 2025).

2.3 Vocational Colleges

Vocational Colleges play a vital role in producing a skilled individual through TVET education, which highlights the mastery of practical skills and employability in alignment with industry requirements (UNESCO, 2022; Ministry of Education Malaysia, 2025). In the Cosmetology Program, specifically within the Body Treatment subject, students must master massage techniques involving an understanding of muscle structures, steps, and precise hand movements through continuous practical training (Tee et al., 2022; Hassan et al., 2024). However, a heavy reliance on lecturer demonstrations without the support of systematic learning materials makes it difficult for students to review their learning independently outside the classroom (Zervas & Stiakakis, 2024). Therefore, the development of a 3D

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animation-based e-module is considered as a necessity to assist in the visualization of procedures, increasing understanding, and support self-directed learning among vocational students (Maulidi et al., 2025; Setiyawan et al., 2024).

METHODOLOGY

3.1 Research Design

This study uses the Design and Development Research (DDR) approach as proposed by Richey and Klein (2007), as it is highly suitable for developing and evaluating educational products like e-modules within a real-world context. This approach emphasizes a systematic process encompassing needs analysis, design, development, and product usability evaluation based on both theory and experimental data. The application of DDR in this study enables the development of a 3D animation-based e-module that meets the requirements for learning practical skills through visual, step-by-step guidance, thereby supporting self-directed learning among Cosmetology students at Vocational Colleges.

3.2 Research Sample

The research sample for the needs analysis phase consists of two Cosmetology lecturers from Vocational College ERT Setapak, selected through purposive sampling based on their teaching experience of over five years and their direct involvement in the Body Treatment subject. This selection aligns with TVET guidelines that recognize such experience as a level of professional expertise (MQA, 2025). Furthermore, this approach is appropriate for qualitative research as it facilitates the collection of in-depth information regarding learning needs, curriculum content, and actual teaching practices (Creswell, 2014).

Table 1. Research Sample Information

Research Participant	Field	Teaching Experience
Teacher 1 (T1)	Cosmetology	10 years
Teacher 2 (T2)	Cosmetology	5 years

3.3 Research Instrument

The research instrument for the needs analysis phase is a semi-structured interview protocol developed based on a literature review of self-directed learning, e-modules, multimedia usage, and procedural skill instruction. This method was selected because it allows for the collection of in-depth and flexible data, while providing respondents with the space to share their views in detail (Creswell, 2014). Interviews will be conducted online and recorded with the consent of the respondents for data analysis purposes.

3.4 Data Analysis Method

Interview data is then examined using descriptive analysis, which involves the process of recording the interviews, verbatim transcription, data coding, and the identification of key themes. This method is employed to identify the essential elements required for the development of the e-module, such as content, module structure, visual and animation requirements, and self-directed learning features. The results of this analysis subsequently serve as the foundation for the e-module's design and development phase.

3.5 Research Findings

The study was conducted using interview methods. The findings from these interviews were utilized to identify the essential elements required for the development of the e-module.

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3.5.1. Emphasis on Basic Swedish Massage Techniques

The interview data indicate that the Petrissage technique within Swedish Massage requires significant emphasis, as it consists of several sub-techniques frequently utilized during back massage treatments. This finding was agreed upon by both teachers, who stated:

"...Petrissage has many sub-techniques, for example, there is wringing, scooping, kneading, and others, so this is where students might get a little confused..." (T1)
"...For me, it's between Effleurage, Petrissage, and Friction. This is because for Effleurage, Petrissage, and Friction, there are many specific techniques involved..." (T2)

3.5.2. Back Massage Sequence Steps

The transcribed interview data reveal that the lecturers do not strictly adhere to a fixed sequence; instead, the steps vary based on treatment requirements and industry standards. Both teachers agreed on this flexibility, stating:

"...In the industry, they have their own techniques. Sometimes, when students go to work, they are asked to use specific spa techniques. As long as the students master the five core techniques, the sub-techniques can be chosen based on suitability..." (T1)
"...The sequence varies depending on the part of the body. But it also follows spa standards; we don't use everything, it depends on the suitability and the client's needs..." (T2)

3.5.3. Content Delivery Method

The transcribed interview data indicate that the animated videos within the e-module are best developed section-by-section. This approach ensures that the content is modular and easy to digest. Both teachers agreed on this delivery method, stating:

"...Show the technique videos section-by-section so that students can easily understand, as they are already accustomed to learning in that manner..." (T1)
"...In this prototype, I see effleurage; you can then proceed to create petrissage and the subsequent techniques. This way, each technique will have its own individual video that students can select later..." (T2)

3.5.4. Additional E-Module Elements

The transcribed interview data reveal that a combination of animated videos, supplementary notes, and assessment quizzes is highly suitable for this e-module. This integration of multimedia and interactive elements was agreed upon by both teachers, who stated:

"...In my opinion, quizzes and notes are appropriate for this e-module to help students further strengthen their understanding..." (T1)
"...You should create concise notes that are easy for students to read; they don't need to be too long. Using a mind map format would also be suitable..." (T2)

DISCUSSION AND CONCLUSION

The development of the Swedish Massage Pro 3D Animation Learning e-module is grounded in a systematic needs analysis that highlights the necessity of transforming traditional vocational pedagogy into a more flexible, technology-driven experience. Findings from professional expertise indicate that a primary focus must be placed on the Petrissage technique and its various sub-movements, such as wringing and scooping, which lecturers identified as major points of confusion for students. This emphasis aligns with Mayer's Cognitive Theory of Multimedia Learning, suggesting that segmenting complex procedural information into manageable, 3D-visualized components effectively reduces cognitive load. Furthermore, the data reveals that while core techniques are fundamental, their application in the spa industry is flexible and context-dependent. This necessitates a modular content delivery system where students can access specific technique videos independently. By integrating

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these realistic 3D visualizations with interactive reinforcement tools like mind maps and quizzes, the e-module moves beyond passive observation to support active, self-directed mastery.

In conclusion, the integration of expert insights and established educational theories confirms that a systematic, 3D-animated approach is essential for updating Cosmetology training. The transition from lecturer-dependent demonstrations to a section-by-section digital delivery allows students to perform repeated references, which is critical for mastering the rhythmic and technical nuances of Body Treatment. As supported by Debrah et al. (2024) and Nurhikmah et al. (2021), the use of realistic 3D visualization and self-assessment features significantly enhances student motivation and practical skill acquisition. Ultimately, this e-module serves as a relevant digital teaching aid that bridges the gap between classroom theory and industry-standard proficiency, ensuring that vocational students are well-equipped for the demands of the professional wellness sector.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

AUTHORS CONTRIBUTION

Syarifah Salma Syed Mohammad Sobri: Writing original draft preparation. **Mohd Nazri Abdul Raji:** Methodology and supervision. **Ade Novi Nurul Ihsani:** Conceptualization. **Farah Najwa Ahmad Puad:** Review and editing. **Gemma Tiara Shamvelani Sidabalok:** Validation. **Nursyaqira Zainulmujahidin:** Data collection.

AVAILABILITY OF DATA AND MATERIALS

Data available on request from the authors.

DECLARATION OF GENERATIVE AI

The authors declare that generative AI or AI-assisted technologies were used solely to improve the language and readability of this manuscript. All such use has been appropriately disclosed and the authors take full responsibility for the content of the work.

ETHIC STATEMENTS

Not applicable.

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