Jurnal Pendidikan Vokasi
Volume 14, No. 2, 2024, pp. 163-179
Online: https://journal.uny.ac.id/index.php/jpv

Linktree-based digital media development to improve learning on the Merdeka Belajar Kampus Merdeka (MBKM) curriculum in cosmetology education

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ARTICLE INFO

Article History
Received:
February 4, 2024;
Revised:
August 26, 2024;
Accepted:
October 11, 2024;

Keywords
Cosmetology;
Digital media;
Learning media effectiveness;
Linktree;
Merdeka Belajar Kampus Merdeka (MBKM)

ABSTRACT

The Merdeka Belajar Kampus Merdeka (MBKM) curriculum implements innovative learning in the education sector's digitalization era. This program enables student exchanges and expands the boundaries of the physical classroom into a digital space. Linktree-based digital media can be used online by students participating in student exchange collaborations and by students studying in class. This research aims to determine the feasibility and effectiveness of Linktree-based digital media in improving MBKM learning in cosmetology education. The research uses the ADDIE development model. Validation results from learning experts reached 80.33% in the good category, while material experts scored 81.63% in the very good category. Media experts' validation scored 80% in the good category. The results of the limited trial reached 85.54% in the very good category, and field trials obtained 90.4% in the very good category. This demonstrates that Linktree-based digital media is feasible and effective for use in cosmetology learning to enhance MBKM learning. The pre-test score was 75.52%, and the post-test score was 88.62%, showing a significant increase of 16.10%. This data indicates improved learning outcomes and student motivation to participate in MBKM learning. The contribution of the research shows that using Linktree can enhance student learning outcomes by increasing motivation and engagement while also simplifying the delivery of learning materials for teachers, thus supporting the improvement of MBKM learning and increasing the accessibility of cosmetology education resources.

INTRODUCTION

Education is an effort to prepare human resources, which are required to have skills and expertise (Putro et al., 2023). A quality country can be seen in its advanced education sector (Riyana & Setiawan, 2023). The Merdeka Belajar Kampus Merdeka (MBKM) changes the paradigm of competitive education to collaborative (Fatimah et al., 2022; Rodiyah, 2021). The MBKM program, a unique approach to education, emphasizes independent learning, where students are encouraged to master various fields of knowledge according to their expertise, preparing them to compete globally (Baharuddin, 2021; Munawwarah et al., 2020). The learning process at the Kampus Merdeka is a manifestation of student-centered learning, which is very essential (Meke et al., 2021).

Learning at the Kampus Merdeka provides challenges and opportunities for developing innovation, creativity, capacity, personality, and needs (Ainia, 2020; Arsyad & Widuhung, 2022). There are eight learning activities in the MBKM program, namely student exchange, internship/work practice, teaching assistance in educational units, research/research, humanitarian projects, entrepreneurial activities, independent studies/projects, and building thematic real work villages/colleges (Fuadi & Aswita, 2021; Sudaryanto et al., 2020). Merdeka Belajar Kampus

Merdeka learning activities can develop students' independence in seeking and discovering knowledge through field realities and dynamics such as ability requirements, real problems, social interactions, collaboration, self-management, performance demands, targets, and achievements (Kuncoro et al., 2022). A well-designed and implemented independent learning program will strengthen students' hard and soft skills (Fauziah & Vantissha, 2021).

Transforming education through an independent learning policy is one of the steps to realizing superior Indonesian human resources. The MBKM program prepares students to be able to face sociocultural changes, the world of work, the business world, and rapid technological advances (Sujadi et al., 2017; Vhalery et al., 2022). According to Murni (2024), MBKM prepares students to enter the industrial world by applying their knowledge in a real work environment increasingly integrated with technology. Technology implementation in the industry covers various aspects, from e-commerce and online beauty classes to product promotion through digital reviews. They must master relevant technology, understand how digital platforms work, and be able to create interesting content (Alfikalia et al., 2022). Therefore, every educational institution must prepare new literacy and guided orientation in the field of education (Lase, 2019).

Vocational education plays a vital role in producing quality human resources aligned with industrial needs, making it a cornerstone of a nation's economic development. It must equip students with core competencies academic, vocational, and social skills, while preparing them to adapt to the ever-evolving work environment (Zhou, 2024). Meeting the demands of the industrial world requires graduates who are ready to work, with strengthened practical skills that go beyond theoretical understanding (Collins & Halverson, 2018). Integrating informatics into vocational education curricula and aligning programs with industry standards can bridge skill gaps and enhance student preparedness for technological advancements (Fitrihana & Nurdiyanto, 2023). Furthermore, vocational education must ensure that students have ample opportunities for hands-on practice and are taught by educators with expertise in their respective fields to maximize learning outcomes and workforce readiness (Rahmadhani et al., 2022).

However, the problem is that many vocational education institutions still do not master practical tools, materials, facilities, and infrastructure, and many teachers still do not master technology. In fact, in the 4.0 era, the industry has applied much digital technology to various jobs. Digital technology can also be applied to help students in carrying out work practice simulations. Vocational education must produce human resources with special skills in various industrial fields who can work with digital technology (Kovalchuk et al., 2023). Digital technology is very important in vocational education (Cattaneo et al., 2022). Digitalization has become a major focus of vocational education policy in recent years. The use of technology is very important for better connectivity of vocational learning with industry (Aprea et al., 2020). Improving students' skills according to the world of work must emphasize the need for digital transformation through changes in globalization so that students are ready to enter the global labor market (Leshchenko et al., 2021; Morze & Strutynska, 2021; Pinchuk et al., 2019).

Digital transformation continues rapidly shaping the work environment (Belaya, 2018; Dobricki et al., 2020). Digital technology is integrated into every job, so workers must have proficiency in using technology (Euler & Wilbers, 2020; Säljö, 2021; Willermark & Islind, 2023). Digital technology can also combine formal and informal learning (Zhuang et al., 2017) and function as a learning tool that influences students' daily learning experiences (Collins & Halverson, 2018; Euler & Wilbers, 2020). Through digital learning, it is hoped that students can develop knowledge, skills, and attitudes to achieve effective and efficient learning (Yang et al., 2021). Digital technology is also useful for improving teacher skills and learning quality (Pooja, 2021). Thus, vocational education must be able to keep up with developments in the business and industrial world. Vocational education is expected to make a real contribution to producing superior human resources. One of the vocational education in higher education is makeup education.

Cosmetology education is one of the study programs at Universitas Negeri Medan. Cosmetology education graduates are expected to become beauty teachers and entrepreneurs. The knowledge studied in the makeup education study program includes educational knowledge and expertise in the field of makeup, starting from the basics of makeup, skincare, hair care, traditional

and modern bridal makeup, fantasy makeup, and entrepreneurship and makeup business management.

Based on observations and interviews by the Universitas Negeri Medan Cosmetology Study Program, most students come from high school. This means lecturers in the cosmetology study program have to teach more extravagantly by preparing innovative learning and easy-to-understand learning media, as well as providing student learning motivation so that students can achieve learning outcomes covering cognitive, affective, and psychomotor aspects optimally and always relevantly through the MBKM program. However, the use of traditional and non-interactive media, such as textbooks and lectures, can also affect cosmetology students' learning outcomes.

Learning has been implemented using technology, but it is still limited and needs adjustment. The obstacles faced are lecturers who have not fully mastered technology and students who use technology for personal matters such as social media. Students can utilize technology for maximum learning, such as learning applications via Android. Teaching methods are still conventional, even though MBKM focuses on learning achievement, where education is centered on the material that must be completed and the outcomes. In simple terms, it emphasizes the sustainability of the learning process in an innovative, effective, and interactive way. The MBKM program is expected to be able to answer the challenges of higher education to produce graduates who are in line with current developments, advances in science and technology, demands of the business and industrial worlds, as well as societal dynamics (Kusumawijaya et al., 2022).

One of the efforts of universities to implement innovative learning is by developing digital learning media through technological advances. The learning process can use media effectively to achieve learning objectives (Frananda et al., 2023). Digital learning media is learning media that can be processed, accessed, and distributed using digital devices (Batubara, 2021). Digital learning media can stimulate students' interest in learning about the material by utilizing digital media in images, audio, video, and animation (Purwati, 2021). Digital media-based learning can facilitate wider, more varied learning activities, and students can learn anytime and anywhere without being limited by distance, space, or time (Munir, 2017). One of the digital media used in learning is the Linktree application.

Linktree learning media is a website-based media whose main function is to support distance learning, such as embedding material, quizzes, attendance, and so on, which are provided free of charge, making it easier for users to carry out online learning (Fitriani et al., 2021). According to Firda and Rachmadyanti (2022), Linktree-based learning is creative learning that provides learning, archiving, and storing lessons via the Internet. Various information, such as Google Drive links, YouTube videos, and website links, are available on the Linktree application. This Linktree application has several advantages. Its operation is very easy because users can adjust the page display and add, delete, and change links before using them in learning (Nurafni & Ninawati, 2021).

Linktree-based learning is one of the steps to minimize lazy students because linktree can be used anywhere (Kurniawati, 2021). The results of Kurniawati (2021) show a significant relationship between using the Linktree application and student learning outcomes. Linktree media is effective in learning so that it can improve learning outcomes. This is reinforced by Isromia's (2021) research, which states that Linktree can help students learn. Furthermore, Nuzirwan and Salayan (2021) also emphasized that Linktree is very suitable for use as a learning medium and makes it easier for students to receive their lessons.

The MBKM program enables student exchange and the learning process in the classroom (physical) into a digital space. Linktree-based digital media can be used online by students who collaborate on student exchanges and students who study in (physical) classes to support the implementation of MBKM in higher education. The Linktree application can be used on mobile devices and PCs. In this application, lecturers can upload lesson plans, learning materials, learning videos, journal articles, books, etc. Students can easily download lesson plans, learning materials, journals, books, and videos from the Linktree application. Linktree makes it easy for teachers to enter learning links in one place (Wardoyo et al., 2020). Teachers can also integrate various learning content into one link because Linktree can collaborate with other sites via the Internet. Students can choose the desired learning through various content presented (Amaliah et al., 2021; Nurafni & Ninawati, 2021). Based on the background of the problems above, this research focuses on the

development of Linktree-based digital media for improving MBKM in cosmetology education. It is hoped that this research will improve learning outcomes by increasing student motivation, involvement, and efficiency in teaching, thereby helping improve MBKM learning and increasing accessibility of educational resources, especially in makeup education.

METHOD

This research was conducted in March 2023 in the Makeup Education Study Program, Universitas Negeri Medan, Class of 2022, with 80 students. Sampling was carried out using a purposive sampling technique with a specific purpose. The sampling criteria were students who used the MBKM curriculum in the makeup education study program. This research is research and development (R&D) research. The development model used is the ADDIE development model. The ADDIE model uses a systems approach through several stages: analysis, design, development, implementation, and evaluation (Januszewski & Molenda, 2013). The ADDIE model was chosen because it is easy to use and can be applied in a curriculum that teaches knowledge, skills, or attitudes (Cheung, 2016). In addition, the ADDIE model can also be applied to curriculum development activities. The media development process goes through several tests by a team of experts; trials are carried out on a limited scale or a wide scale (in the field), and revisions are made to perfect the final product so that the product developed meets the criteria for a good product, is empirically tested, and has no more errors (Cahyadi, 2019).

The stages of the ADDIE development model in this research are: (1) Analysis (curriculum, student needs, learning needs, and stakeholder needs); (2) Design (conducting FGDs, material analysis, storyboards, and formulating the appearance of the Learning Strategy Linktree page); (3) Development (producing digital media products in the form of a link tree, validation of learning experts, materials and media, and improvements to materials and media); (4) Application (applying digital media in the form of a Linktree to students who use the MBKM curriculum); and (5) Evaluation.

Table 1. Stages of Research Using the ADDIE Model

Stage	Activities
Analysis	Curriculum assessment, identifying student and stakeholder needs.
Design	FGDs, material analysis, storyboard development, and Linktree layout formulation.
Development	Creating Linktree-based digital media, validation by experts, and revisions.
Implementation	Application of the Linktree to students in the MBKM curriculum.
Evaluation	Measuring effectiveness and attractiveness using descriptive statistical analysis with percentages.

The data collection technique employs a questionnaire to gather feedback on the developed learning media. The data analysis technique utilizes descriptive statistical analysis with percentages, which is effective for summarizing collected data without making generalizations or inferences (Kusuma & Mahardi, 2021). Descriptive statistics allow researchers to identify trends and patterns in respondents' feedback, providing insights into the perceived effectiveness and attractiveness of the product. Qualitative data from respondents' statements, such as strongly agree, agree, disagree, and strongly disagree, are converted into quantitative data on a 1 to 4 value scale. These values are then averaged to determine overall perceptions of the learning media's quality. Furthermore, the criteria for learning media quality are analyzed descriptively and mapped onto a four-point Likert scale, categorizing results into levels of effectiveness and suitability for educational purposes.

Table 2. Validation and Trial Questionnaires

Validation/Trial Type	Aspects Evaluated
Learning Expert Validation	1. Learning Objectives
	2. Learning Activities
	3. Teaching Methods
	4. Benefit for Students
	5. Accuracy of Media Use
	6. Accuracy of Media Content
Subject Matter Expert Validation	1. RPS Suitability
	2. Suitability of Material to Learning Objectives
	3. Suitability of Material to Media
	4. Suitability of Material in the Learning Video
	5. Latest Material from Journals
	6. Systematic Presentation of Material
	7. Appropriate Time Duration of the Material
	8. Use of Grammar to Present Material
Media Validation Expert	1. Media
	2. Composition
	3. Balance
	4. Integration
Student Trial	1. Display Design Quality
	2. Content Quality
	3. Technical/Appearance Quality
	4. Quality of Decisions and Media Use
	5. User-Friendly Qualit

RESULTS AND DISCUSSION

Results

Merdeka Belajar Kampus Merdeka (MBKM) focuses on achievements emphasizing innovative, effective, and interactive learning processes. One of the efforts of the cosmetology education study program to carry out innovative learning is by developing the digital learning media Linktree. Linktree-based digital media can be used online by students undertaking student exchange collaborations and students studying in class in the implementation of the Merdeka Belajar Kampus Merdeka (MBKM) program.

Linktree media was developed using the ADDIE development model. The stages of the ADDIE development model are analysis, design, development, implementation, and evaluation. At the analysis stage, observations and interviews were carried out with cosmetology lecturers to analyze the curriculum and student needs. The observations and interviews revealed that in the student exchange cooperation program, several cosmetology courses did not have the same number of semester credit units and required additional assignments to fulfill the number of semester credit units, so assignments were only given via WhatsApp. Conventional learning media is still applied in the MBKM program, despite the need for learning media to keep up with technological developments. Few educators believe that the main factor for successful learning must be using technology-based learning media (Budiyono, 2020). Therefore, digital media, in the form of Linktree, was developed to bridge these curriculum gaps and enhance learning in the MBKM curriculum in cosmetology education.

Initial product design is carried out at the design stage, namely, preparing a design for the Linktree digital learning media model. On Linktree media, there are menus for RPS, Learning Media, Learning Videos, Articles, Teaching Letters, Books, and Borrowing Books. The Linktree application can be used on mobile and PC. Lecturers can upload lesson plans, learning materials, learning videos, journal articles, books, etc., on the Linktree application, and students can easily download lesson plans, learning materials, journals, books, and learning videos on the student link menu. The appearance of e-learning media assisted by Linktree is designed to be simple and not boring to attract

students' attention (Zulfakar et al., 2021). Linktree is an interactive media and easy to use even for beginners (Amaliah et al., 2021). Link-based alternative media can be used by teachers to trigger students' motivation and interest in learning (Amaliah et al., 2021). Linktree media can be accessed on the page https://linktr.ee/prodi_tata_rias.

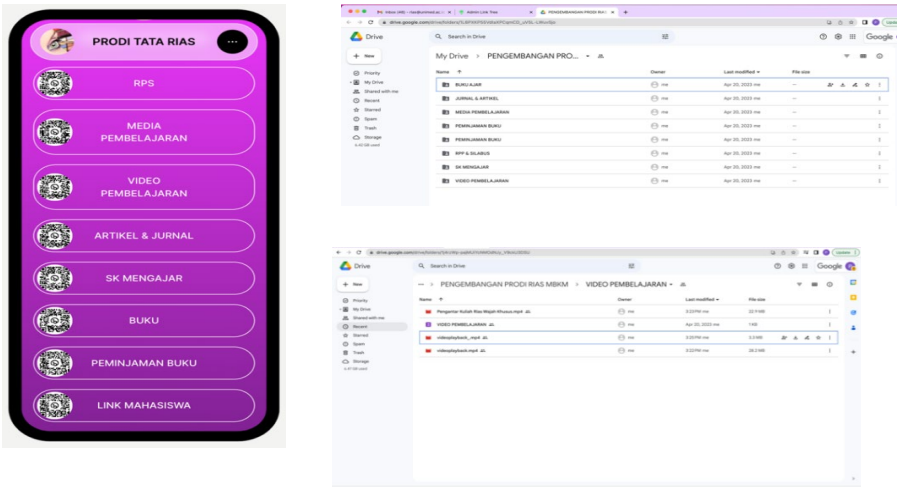

Figure 1. Linktree's Digital Media Section

The next stage is the development stage. At the development stage, media is developed and validated by three experts: learning experts, material experts, and media experts. The validity of the assessment in this research refers to Sugiyono's (2013), which states that a valid instrument is the measuring instrument used to obtain valid (measuring) data. Validation was carried out through two validation processes, with the results of the first validation obtaining several suggestions for improving the module (Rayanto et al., 2020).

Validation of learning experts on Linktree digital media was carried out by Cosmetology Education, Faculty of Engineering, and Universitas Negeri Medan lecturers. Six indicators were assessed by learning experts. The learning objective indicator obtained 80%. The learning activity indicator obtained 85%. The teaching method indicator obtained 75%. The benefits indicator for students obtained 82%. The indicator for the accuracy of media use is 80%, and the indicator for the accuracy of the content of Linktree learning media is 80%. The average result of the learning expert assessment was 80.33% in the good category. It is known that all validated learning indicators are in a good category, but more attention must be paid to teaching methods. Lecturers not only send Linktree media but also have to make learning more fun using Linktree media.

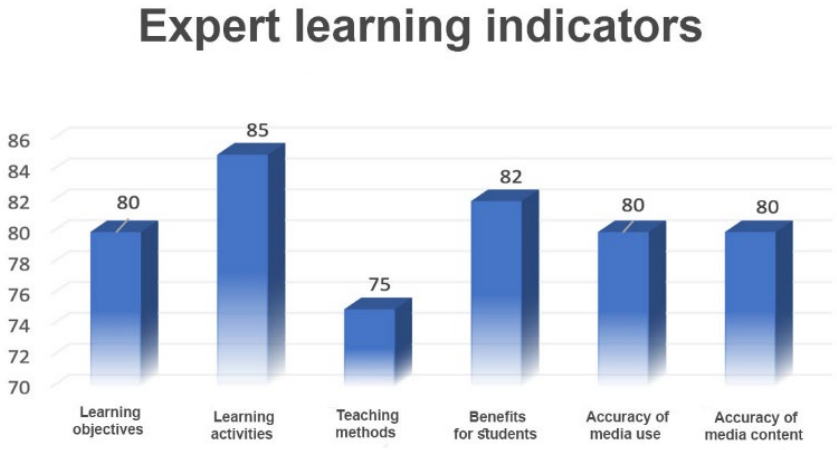

Figure 2. Learning Expert Assessment Diagram

Material validation is carried out to see the suitability and quality of the material presented on Linktree media. The material expert is a cosmetology lecturer at the Engineering Faculty at Universitas Negeri Medan.

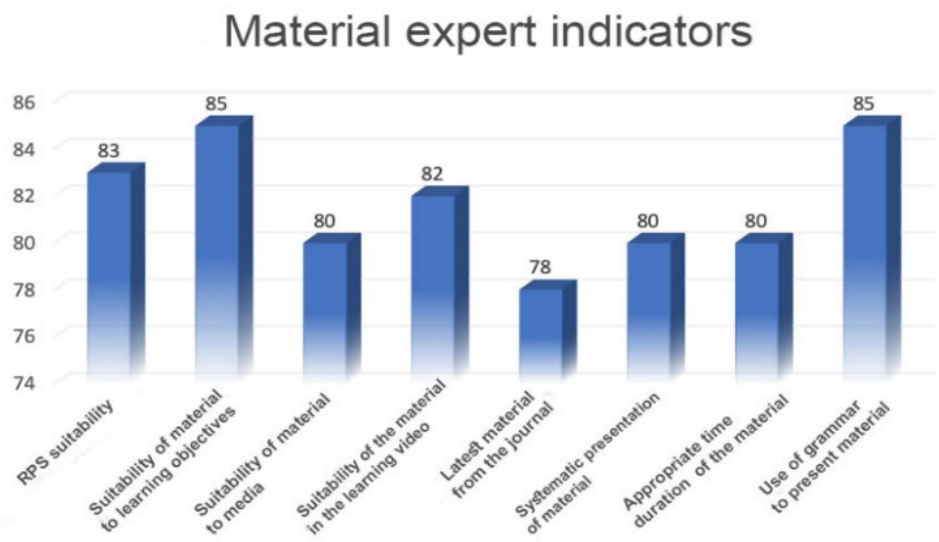

Figure 3. Material Expert Assessment Diagram

From the data in Figure 3, it can be seen that the RPS suitability indicator obtained 83%, the material suitability indicator for learning objectives obtained 85%, the material suitability indicator for the media obtained 80%, the material suitability indicator in the learning video obtained 82%, the latest material indicator from journals obtained 78%. The indicator of systematic presentation of material obtained 80%, the indicator of suitability of duration of material obtained 80%, and the use of grammar to present material obtained 85%.

The average material expert assessment results, standing at 81.63% in the very good category, are a testament to the expertise of our lecturers. Their mastery of the material's content, core competencies, and basic competencies in making media ensures that the learning media has a significant impact on students' understanding of the material (Hidayah et al., 2016). The process of media expert validation involves a thorough assessment of the learning media's suitability. This validation is carried out by lecturers who are experts in digital media. They evaluate the media based on four key indicators: media quality, composition, balance, and integration.

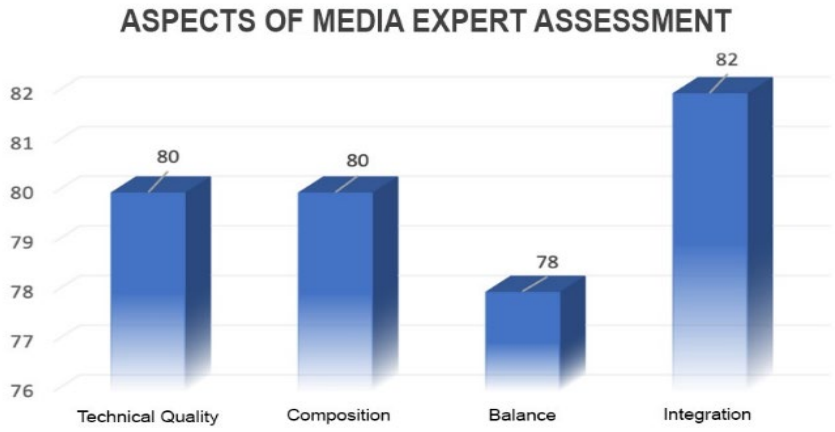

Figure 4. Media Expert Assessment Diagram

The results of media expert validation on media quality indicators were 80%. The composition indicator obtained 80%, the balance indicator obtained 78%, and the integration indicator obtained 82%. The average media expert assessment result is 80% in the good category. This means that media displays can make students interested in learning. Learning media that is packaged well can attract attention, motivate students to learn, and remind them of the knowledge and skills they have learned (Setyaningsih & Dewi, 2015).

The validation results obtained from learning experts, material experts, and media experts are an assessment in preparing the Linktree application for cosmetology students, which is expected to improve the quality of learning and knowledge of cosmetology students. The validation results have undergone revision from experts. Revisions are made based on validator suggestions for improvement.

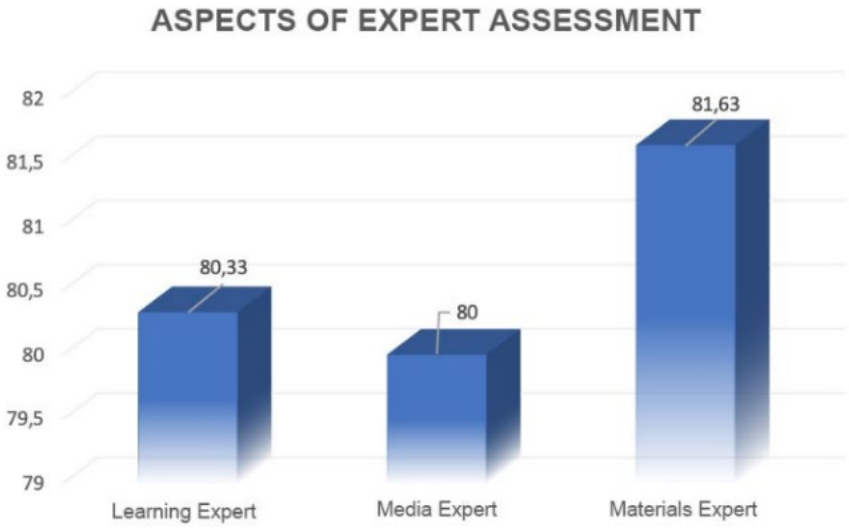

Figure 5. Graph of Percentage of Expert Ratings

Our expert validation data has yielded promising results. The learning expert validation scored 80.33%, placing it in the good category, while the media expert's score of 80% also falls within this category. The material expert's validation result of 81.63% is particularly noteworthy, placing it in the very good category. These results affirm the suitability of Linktree media for enhancing MBKM learning in the cosmetology education study program.

Following the media validation, we proceed to the crucial implementation stage. Here, we conduct comprehensive limited and field trials. These trials are designed to identify any remaining weaknesses or deficiencies after revisions have been made based on student feedback. The thoroughness of our approach is demonstrated by the fact that we conducted limited trials in a single class, ensuring a focused and detailed evaluation with 20 students.

Table 3. Small Group Trial Results

No.	Aspect	Average Percentage (%)	Criteria
1	Display Design Quality	85.20	Very good
2	Content Quality	84.80	Very good
3	Technical/Appearance Quality	86	Very good
4	Quality of Decisions and Media Use	85.20	Very good
5	User-Friendly Quality	86.50	Very good
Amount		427.7	
Average		85.54%	

The trial results were limited to 5 aspects, namely the aspect of design appearance quality, which obtained 85.20% in the very good category. The content quality aspect obtained 84.80% in the very good category. The technical quality aspect obtained 86% in the very good category. The accuracy of media use was obtained at 85.20%. The utility quality aspect obtained 86.50% in the very good category. From the five aspects of the assessment, the average limited trial result was 85.54% in the very good category. This means that Linktree media is suitable for use in learning and can be continued with field trials.

Field trials were carried out in 3 classes totaling 60 students. The assessment results from the design appearance quality aspect obtained 87.20% in the very good category. The content quality aspect obtained 85.80% in the very good category. The technical quality aspect obtained 87% in the very good category. The accuracy of media use was obtained at 88.20%. The utility quality aspect obtained 87.50% in the very good category. These results confirm the effectiveness of Linktree media in practical educational settings, providing reassurance about its potential for widespread use.

Table 4. Field Trial Results

No	Aspect	Average Percentage (%)	Criteria
1	Display Design Quality	87.20	Very good
2	Content Quality	85.80	Very good
3	Technical/Appearance Quality	87	Very good
4	Quality of Decisions and Media Use	88.20	Very good
5	User-Friendly Quality	87.50	Very good
Amount		452	
Average		90.4%	

Based on the assessment of these five aspects, the average field test results were 90.4% Very Good. The declaration of Linktree media's suitability for cosmetology study programs is not only based on the results of field trials, but also on the active involvement of users in the form of user trials, as previous research has shown (Khalil et al., 2024).

The effectiveness test was carried out to determine the effectiveness of Linktree media in learning cosmetology. The level of effectiveness of e-learning media assisted by Linktree can be measured through differences in learning outcomes (Muhajir et al., 2019). This was done by conducting pretests to assess the students' knowledge before the use of Linktree media, and posttests to measure their knowledge after the use of Linktree media. The difference in scores between the pretests and posttests was used to determine the effectiveness of Linktree media in improving learning outcomes.

Table 5. Effectiveness Test and Hypothesis

Class	N	Minimum	Maximum	Mean	SD
Pre – Test	60	50	75	72.52	7.35
Post - Test	60	80	100	88.62	6.85

Notably, the pre-test score was 75.52%, and the post-test score was 88.62%, resulting in a significant 16.10% increase in learning outcomes. This data underscores the effectiveness of the MBKM learning approach, demonstrating both increased learning outcomes and student motivation. The evaluation stage is carried out to determine whether the media developed by researchers meets the requirements. Formative evaluation is obtained at each stage, with a view to revision. While summative evaluation occurs at the final stage of development, validity activities are carried out at the summative stage, which unequivocally state that the media is not just suitable, but highly effective for use in learning.

Figure 6. Results of Learning Media Effectiveness Test

Discussion

The development of Linktree-based digital media, a process carried out using the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation), aims to improve MBKM learning. This model ensures a systematic approach to media development, from identifying learning needs to evaluating the effectiveness of the developed media. Linktree media can be used boldly or attractively by students doing student exchange cooperation or students who study in class to support the implementation of MBKM in the makeup study program. The Linktree application can help improve learning outcomes. Content such as materials, videos, and presentation materials can be accessed via PC or Android.

Learning media development is a journey of achievement that plays a crucial role in enhancing the completeness and clarity of educational materials, assisting students in their learning process. Effective learning media bridge the gap between teachers and students, facilitating better understanding and engagement. Linktree media, accessible at https://linktr.ee/proditatarias, provides a versatile platform where lecturers can upload lesson plans (RPP), learning materials, videos, journal articles, books, and more (Wardoyo et al., 2020). By simplifying the sharing of links and learning documents, Linktree motivates students through its simple design and attractive interface. The importance of validation and practicality in learning media development is demonstrated in studies showing high validation scores for various media, including modules and interactive tools (Widodo et al., 2024; Zhao & Anas, 2023). Innovative media, such as comics and interactive marketing tools, further enhance student interest and motivation (Achmad et al., 2022; Melliyani et al., 2023). Educators can take pride in their achievement when they see the positive impact of these innovative media on student learning. The adaptability of platforms like Linktree highlights its potential to address diverse student needs and learning contexts, making it a valuable tool for improving learning outcomes.

Based on the validation results by learning experts, the development of Linktree media obtained 80.33% with a good category. The validation results by material experts obtained 81.63% in a very good category. The validation results by media experts obtained 80% in a good category. Limited trials conducted by 20 students obtained 85.54% in a very good category, and field trials conducted by 60 students obtained 90.4% in a very good category. This shows that Linktree-based digital media is feasible and effective for makeup learning to improve MBKM learning. In the MBKM program, Linktree serves as a versatile tool that enhances the learning experience and outcomes. The results of Isromia's (2021) also show that applying the Linktree-assisted e-learning learning method is effective for learning outcomes.

In this study, the pre-test score was 75.52%, and the post-test score was 88.62%, indicating a significant increase of 16.10%. These data indicate increased learning outcomes and student motivation in participating in MBKM learning. This study was strengthened by Ayuniara and Nasution (2024), who concluded that the learning media developed based on Linktree was valid, practical, effective, and able to improve students' creative thinking skills. This finding shows that

Linktree is effective as a learning medium in the MBKM program. Linktree allows teachers to provide links related to teaching materials so that students can easily access additional sources of information. Linktree can be used with a case study approach and problem-solving in makeup learning. The Linktree application is very flexible and accessible. Linktree is easy to personalize and design while accommodating all the important links you want to share with the audience. Linktree media can make students not feel bored even though they are studying from home, so it is expected to increase student motivation in learning (Kurniawati, 2021).

Linktree, as a digital tool, offers significant advantages in the educational landscape by enhancing accessibility and engagement in the learning process. It allows educators to consolidate various resources into a single, easily accessible link, enabling seamless access to learning materials anytime and anywhere. This feature supports independent learning and caters to diverse student needs, ultimately improving learning outcomes. Studies have demonstrated that integrating Linktree in interactive learning significantly improves educational results. For instance, using Linktree in problem-based learning for history led to higher average learning outcomes than traditional methods, with effectiveness tests showing statistically significant results (Harna et al., 2024).

In mathematics education, combining Linktree with interactive tools such as LiveGAP boosted student motivation and engagement, as evidenced by improved scores on motivation questionnaires throughout the learning cycle (Annisaturrodliyah & Marhayati, 2024). Additionally, Linktree's collaborative potential, when used in cross-curricular teaching, has been shown to enhance students' digital skills, with activities such as video production and photography fostering practical competencies (Kuzma, 2024). While Linktree provides numerous benefits, its effectiveness depends on integrating well-designed pedagogical strategies and ensuring equitable access to technology and internet connectivity for all students.

This e-learning learning media can build a more active learning atmosphere that is not boring and not monotonous so that students are actively involved during learning (Ratnawati & Werdiningsih, 2020). Using e-learning media assisted by Linktree positively influences student learning outcomes (Khalil et al., 2024). The development of this linktree media is different from other media, especially the linktree design, which is designed according to the mobile (cellphone) display. This is the basis for the development of Linktree because almost all students have cell phones, so they can access Linktree according to their needs. Using mobile learning media with Linktree is expected to increase student engagement and improve student learning outcomes. Students can operate Linktree media in the learning process in the classroom by utilizing a wifi network.

The results of this study emphasize that Linktree has the potential to be the right media to improve student's learning experience and performance in vocational education, so Linktree media is suitable and effective for use in various learning activities, especially makeup education. However, it's important to note that Linktree, as a makeup learning media, has great potential, but it also has several limitations. For instance, it lacks interactivity because Linktree functions as a link aggregator platform and not an interactive platform. This means limitations in presenting direct learning, such as simulations or hands-on activities, which are very important in makeup learning emphasizing direct practice. Users still have to access links to other platforms for interactive experiences.

Additionally, Linktree does not yet support dynamic learning personalization. Every user who accesses Linktree will see the same content, making it difficult to adjust the material based on each student's needs or ability levels, which may differ in makeup learning. Evaluation of work results (such as makeup results or practical skills) is very important in makeup. Linktree also lacks built-in features to manage student learning progress, such as quizzes, grades, or performance evaluations in face-to-face practice, thus not supporting effective learning evaluation. Therefore, further research is needed to integrate more dynamic and interactive platforms to enhance immersive and customized practical learning experiences for students.

CONCLUSION

This study produces a product in the form of digital media based on Linktree to improve independent campus learning in makeup education. The results of the validation of learning experts

are 80.33% in the good category. The results of the validation of material experts are 81.63% in the very good category. The results of the validation of media experts are 80% in the good category. The results of the limited trial are 85.54% in the very good category. The field trial is 90.4% in the very good category. The pre-test value is 75.52%, and the post-test value is 88.62%, showing a significant increase of 16.10%. These findings indicate that Linktree is an effective learning medium in the Independent Learning in Campus (ILIC) program, a program designed to promote self-directed learning and digital literacy in makeup education. Using Linktree in beauty learning provides many benefits, especially facilitating access to various learning resources, organizing materials effectively, and facilitating course management. Linktree also facilitates practical access from various devices, connects students with portfolios and external resources, and allows teachers to easily update information so that students can focus on important content and practical application of beauty skills. This makes the beauty learning process more efficient, structured, and accessible to students and teachers. The implications of digital media are to increase learning motivation, creativity, and communication, improve digital skills, and help students develop technical skills in makeup. The application of Linktree in future beauty learning can further strengthen the effectiveness and engagement of students with various concrete strategies. More structured use, integration with interactive platforms, increased visual content, and collaboration with the beauty industry and professionals can make the learning process more interesting, organized, and relevant to industry needs. The limitation of this study is the unavailability of interactive quizzes on Linktree, which means that lecturers cannot directly see students' abilities during learning, affecting the media's effectiveness in the long term. Therefore, it is recommended for further research to develop interactive quizzes such as Quizzizz on Linktree and integrate Linktree into the curriculum so that it can be known to what extent the application of this technology affects student performance, understanding of the material, and improving learning achievement so that it can improve learning outcomes.

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