



Developing a Video Tutorial on Combining Gradation and 3D Techniques in Nail Art

Iffah Dini Adillah¹, Mause Agrevinna^{1*}

¹Department of Culinary Arts, Fashion, and Cosmetology, Faculty of Vocational, Universitas Negeri Yogyakarta, 55281, Indonesia

ARTICLE INFO	ABSTRACT
<p>Article history: Received: 5 January 2026 Received in revised form: 28 January 2026 Accepted: 16 February 2026 Available online: 2 June 2026</p> <p>Keywords: Video Tutorials; Nail Art; Gradation Techniques; 3D Ornaments; Media Development</p>	<p>This research is motivated by the need for innovative learning media in the increasingly complex field of nail art. The objectives of this research include three main points: (1) to produce a development design for video tutorials on the integration of gradation and 3D techniques in nail art, (2) to produce development steps for these video tutorials, and (3) to test the feasibility level of the developed media. The methodology applied is Research and Development (RnD) by adopting the 4D procedural model (Define, Design, Develop, Disseminate). This research was conducted in the Wonogiri region, Central Java, involving local nail art practitioners as trial subjects within the 2025 to 2026 period. The results showed three crucial findings: (1) the video tutorial design was systematically validated through detailed storyboard preparation, (2) the video production process successfully integrated Full HD visuals with clear instructional narratives, and (3) the feasibility test results showed scores of 97.50% from material experts, 98.00% from media experts, and 96.50% from users. In conclusion, the video tutorial is declared highly feasible and effective for use as educational media in enhancing nail art technical skills.</p>

1. Introduction

The contemporary beauty industry has undergone significant transformation, where nail aesthetics or nail art is no longer merely a complementary element of appearance but has evolved into a substantial representation of visual art requiring high technical sophistication. The acceleration of global beauty trends compels practitioners to continuously update their technical capabilities in mastering intricate designs to satisfy market expectations and client preferences, which are becoming increasingly selective regarding artistic quality, detailed refinement, and the long-term durability of the resulting work.

However, the manifestation of rapid trend development is not yet fully aligned with the readiness of human resources in the field. A fundamental problem consistently arising is the sharp gap or discrepancy in competence when applying advanced techniques, such as the simultaneous integration of color gradation (ombre) and three-dimensional (3D) ornament formation within a single design. Based on empirical investigations and observations of nail art practitioners in the Wonogiri region, it was identified that the majority of practitioners still face significant challenges in producing smooth and natural color degradations without creating rough or uneven textures.

*Corresponding author.

E-mail address: mausa.agrevinna@uny.ac.id

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Furthermore, technical obstacles are often found during the 3D material formation process, where practitioners frequently fail to create proportional, precise, and strong decorative ornaments when applied over complex gradation base layers [1][2].

The complexity of these problems is further exacerbated by technical barriers in the independent learning process, triggered by the minimal availability of visual literacy sources or educational references capable of demonstrating every detail of tool movement and material application at a micro and in-depth level. The absence of systematically and methodologically prepared instructional guides results in ineffective trial and error processes by practitioners, which tend to be time-consuming and lead to significant inefficiency in the use of premium raw materials. This phenomenon systemically hinders productivity, reduces competitiveness, and limits operational efficiency in various beauty studios and cosmetology educational institutions [3].

Responding to these problems, the strategic solution offered and implemented in this research is the development of audio-visual-based learning media in the form of high-quality video tutorials. The choice of video tutorials as an educational instrument is based on the media's capacity to represent technical realities concretely and dynamically, surpassing traditional print media. Through video, users are given the flexibility for repetitive learning, supported by a harmonious combination of clear verbal instructions and precise visualization of hand movements from various perspectives. This enables a deeper internalization of complex work procedures, making them easier to digest and practice [4][5].

Reviewing previous literature and research [6] regarding learning media in the field of nail art, the focus of discussion is generally still limited to mastering basic techniques in a partial or separate manner, such as standardizing the use of gel polish or simple painting techniques. Although several academic studies have empirically proven that the use of video tutorials can significantly improve practical learning outcomes for cosmetology students compared to the use of printed modules or static images, there is still a wide information gap in the literature [7].

The main limitation of previous research lies in the lack of elaboration regarding the integration and synchronization of two different techniques within a single, coherent workflow. Most currently available learning media present guidance in a fragmented manner, often leading to confusion for learners when they must combine color gradation techniques as an aesthetic background with the placement of 3D ornaments to remain harmonious, properly composed, and not damage the integrity of the underlying layers [7][8].

Therefore, this research serves as a solution-oriented sustainability effort to close this information gap by presenting a holistic and integrated work procedure. The main focus in this research is specifically directed at the synchronization of color gradation aesthetics and 3D structural dimensions, a specific topic previously not dissected in depth or academically validated in a comprehensive educational video tutorial format. Through the development of this media innovation, it is expected that the competency standards of beauty practitioners can transform to a more professional level through accessible and flexible media. The sharpening of detailed technical aspects presented in this video is projected to be the main differentiator and a perfection of various existing references in the current cosmetology education and training ecosystem.

Broadly speaking, the fundamental objective of this research is to formulate and validate an educational media product with a high degree of validity, both theoretically and practically. This product is designed to function as a credible standard guide for educators, instructors, and independent practitioners in transforming the way of teaching and learning the integration of gradation techniques and 3D ornaments in nail art, to create superior and competitive quality standards in the beauty industry.

2. Method

In an effort to validate and produce a credible product, this research fundamentally applies the Research and Development (R&D) methodology [9]. The framework adapted is the 4D procedural model initiated by Thiagarajan [10]. The selection of the 4D model is based on its highly structured, logical, and systematic characteristics in overseeing the educational product creation process. Through this scheme, every developmental stage must pass through a circular and continuous process of testing, evaluation, and revision. This is done to achieve an optimal degree of validity and product reliability, ensuring the final result is precise and aligned with the specific expectations and needs of target users in the beauty industry sector.

The initial stage in this model is the Define phase, which is a crucial foundation for mapping research urgency. At this stage, the researcher conducts an in-depth needs analysis through direct empirical observation and a mini-research execution on the practitioner community in the Wonogiri region. Activities in this phase aim to dissect user demographic and psychographic characteristics, identify in detail the technical barriers often encountered in advanced nail art practice, and determine the essential material substance that must be integrated into the video tutorial. This approach ensures that the developed product has strong relevance and is precisely targeted at the real problems faced by practitioners in the field.

Entering the second stage, Design, the researcher begins constructing the overall media architecture and content framework. This process involves preparing instructional scripts and detailed storyboards, which function as a visual roadmap for every scene sequence. This design phase plays a vital role in ensuring that every second of video duration is utilized efficiently and effectively. This is intended so that the delivery of material regarding complex gradation techniques and structural 3D ornament formation can be conveyed in a coherent, logical, and easy-to-digest manner without unnecessary information redundancy.

Next, in the third stage, Develop, the researcher enters the actual technical production phase. This process includes capturing visual images with an emphasis on using close-up and macro photography techniques to capture micro-level brush movement articulations [11]. Post-production or video editing is then performed by adding touches of explanatory text elements, explanatory graphics, and voice-over synchronization aimed at reinforcing visual instructions. Once the media prototype is constructed, the next step is to conduct validation testing by material and media experts to obtain professional justification before the product is tested on a wider audience.

The final stage of this development cycle is Disseminate, carried out after the product is declared to meet feasibility standards and has passed various revision stages based on constructive input from experts. In this phase, the video tutorial media is disseminated in a limited and controlled manner to the nail artist community in Wonogiri. This step is taken to evaluate the effectiveness of media use in real practical situations, and to see the extent to which this product can function as a self-regulated learning source that can significantly improve the technical competence of users without the physical presence of an instructor [12].

To measure this effectiveness, product testing results are carried out through three rigid evaluation pillars using validated questionnaire instruments. The first pillar involves material expert validation tasked with testing the accuracy of the technical nail art content. The second pillar is media expert validation providing assessments on visual quality, audio clarity, graphic composition, and ease of navigation for users. Meanwhile, the third pillar is the user trial functioned to gather practical response data, satisfaction levels, and media functionality when directly applied in the field work environment.

In the data quantification process, the assessment scheme applies a Likert scale ranging from one to four to ensure objectivity. The raw data obtained is then processed and converted into a percentage format to determine product feasibility qualifications. Based on established parameters, if the calculation results show a percentage above the 80% threshold, the product is automatically categorized as a feasible and valid medium, which can be implemented immediately without requiring major or fundamental revisions.

The entire testing process is conducted objectively and transparently by providing full access to the video to the respondents. After respondents complete all learning stages using the content, they are asked to fill out the evaluation instrument honestly. This rigorous data collection methodology aims to obtain accurate, comprehensive, and impartial data regarding the level of cognitive understanding and the degree of user satisfaction with the functionality of the developed product in assisting their daily work.

Product revision schemes are not ignored; researchers make improvements based on descriptive qualitative input from experts. This includes adjusting durations on technical segments considered too fast, optimizing lighting quality to clarify color details, to improving typography on explanatory text. This systematic corrective action is a quality assurance to ensure that the final product produced has truly reached a stage of perfect maturity and is ready to be published as a professional learning media standard.

As a conclusion to this methodology, the final results of this entire series of testing and development serve as a strong foundation for the researcher to formally state that the developed video tutorial has met all criteria as a credible instructional medium. This product has high utility value, both educationally and economically, for the wider community and particularly for creative beauty industry players wishing to accelerate their technical capabilities to a more professional and competitive standard.

3. Results and Discussion

3.1 Potential of the Produced Product

The existence and manifestation of this video tutorial product, which specifically integrates color gradation techniques and 3D ornament applications, holds fundamental strategic potential as an instrument for technical competency acceleration for practitioners within the contemporary creative beauty industry ecosystem. Amidst the rapid flow of information digitalization and shifting learning paradigms, the presence of methodologically structured audio-visual media provides an inclusive opportunity for nail artists to transcend various geographical barriers in accessing exclusive advanced technical knowledge. This potential allows it to transform into a new future reference standard capable of harmonizing artistic visual aspects with procedural accuracy academically validated through a rigid research and development process.

From an educational perspective, this product has significant potential to be implemented as an instructional curriculum supplement in various vocational education institutions, beauty-themed vocational high schools, and professional beauty course centers. With its flexible and accessible format, this video tutorial can accommodate differentiated learning styles, especially for visual learners requiring empirical observation of every micro hand movement articulation. This will automatically contribute positively to reducing the instructional burden on educators in providing repetitive technical demonstrations, thereby optimizing the effectiveness and efficiency of the practical learning process in the classroom.

When examined from the aspect of technical operational functionality, this video tutorial holds substantial potential in minimizing the risk of application errors or technical malpractice

frequently experienced by novice practitioners. The application of visualization using close-up techniques provides deep cognitive understanding of chemical material mixing ratios and precise brush pressure when forming three-dimensional decorative elements over complex gradation base layers. This preventive potential is a crucial factor in resource efficiency, namely saving the use of premium raw materials with high economic value in the nail art industry, allowing beauty studio operations to be managed under more economical and productive principles.

In the dimension of commercial and creative economic value, this product has the potential to become a high-value digital asset, either through subscription-based distribution mechanisms or as exclusive training material in professional workshops. The media's ability to transform practitioner skills through self-regulated learning provides a great opportunity for nail artists to increase the market value of their services. By mastering the combination of gradation and 3D techniques, a nail artist can offer a more premium and prestigious design portfolio, which will ultimately aggregate into increased profit margins and a strengthened image of professionalism in the national beauty service industry sector.

The sustainability potential of this developmental product is also widely open for further development through integration with Augmented Reality (AR) or Virtual Reality (VR) technologies in the future to create immersive learning experiences. As a solid initial prototype, this video tutorial has laid a strong visual and technical foundation regarding the understanding of structural 3D object dimensions on limited nail surfaces. Further development involving higher interactivity will make this video not just a passive viewing medium, but a comprehensive and innovative digital practice simulation platform for prospective professional nail artists in honing their artistic instincts.

Finally, the socio-economic potential of this product lies in its function as a driver for quality work standardization for the beauty practitioner community, especially in regions that have had limited access to high-quality face-to-face training. By disseminating this tutorial media widely, an inclusive process of technical knowledge democratization will be created, allowing the quality gap between practitioners in large cities and those in sub-urban areas to be significantly narrowed. This potential, in turn, will strengthen the national creative industry ecosystem through the provision of a skilled workforce with high specialized expertise recognized both technically and aesthetically.

3.2 SWOT Analysis of the Product

The Strengths inherently attached to this development product lie in the aspects of content originality and procedural validity, which have undergone a strict curation and audit phase by experts in the field. Its main strength lies in the media's ability to present synchronization between color gradation techniques and 3D applications holistically within a single workflow—an educational feature rarely found in general or non-academic online tutorial content. Furthermore, the support of clear Full HD visual quality combined with communicative instructional narratives provides an immersive learning experience that is easily internalized by users with various levels of competence. Moving to the Weaknesses aspect, this product is identified as having a high degree of dependence on digital infrastructure stability and the availability of capable hardware so that users can observe visual details optimally. As a one-way instructional medium, this video also has inherent limitations in providing direct or real-time feedback to users if they encounter specific technical obstacles during independent practice. Nevertheless, these weakness variables have been preventively mitigated through the preparation of very detailed instructional scripts to anticipate various common technical questions that might arise during the application process.

The strategic Opportunities for this product are very promising, aligning with the consistent upward trend of the personal care and cosmetics industry every year. The shift in sociological preferences toward digital-based learning patterns opens wide opportunities for this video tutorial

to be integrated into various global beauty education platforms or professional training marketplaces. Additionally, the opportunity for collaboration with renowned beauty material manufacturers as an official product demonstration medium also becomes a bright prospect for developing mutually beneficial strategic partnerships in the future.

On the other hand, the Threats constantly faced are the highly fluctuating dynamics of global nail design trends, which carry the risk of making certain visual content less relevant in a relatively short period. Furthermore, the proliferation of similar content on various social media platforms accessible for free poses its own challenge in maintaining the exclusivity and academic credibility of the product. However, this threat can be eliminated by emphasizing academic legitimacy, research validity, and technical accuracy, which serve as the primary comparative advantages of this product compared to social media content that is often non-standardized and methodologically untested.

A Strength-Opportunity (SO) strategy can be applied by maximizing the academic quality of the media to penetrate formal education markets and professional training institutions requiring recognized competency certification. By leveraging the strength of expert validation, this product can be positioned as a primary reference surpassing conventional hobby tutorials. This strategic step will not only strengthen the product's bargaining position amidst competitive educational media markets but also build long-term consumer trust in the methodology and techniques taught in the video.

Comprehensively, the SWOT analysis results show that this product has a very solid structural foundation to survive and grow competitively in the beauty educational media industry. By mitigating weaknesses through the provision of complementary written guides and anticipating threats through periodic content updates according to the latest trends, this video tutorial is projected to be a superior learning instrument. The balance between rigid technical quality and utilization of broad market opportunities makes this development product have a very high prospect for long-term success and utility.

3.3 Optimizing the Product for Nail Artists

Optimizing the product for nail artists is deeply focused on the aspect of practical implementation ease in professional work environments with high-paced and dynamic rhythms. This video tutorial has been designed with an information architecture that allows fragmentary access, giving practitioners the flexibility to go directly to specific technical segments they wish to deepen without having to consume the entire video duration from the beginning. The addition of duration indices and emphasis on crucial points in the video significantly assists professional nail artists in conducting a quick technical review immediately before providing services to clients, ensuring procedural accuracy and perfect results.

Furthermore, optimization steps were also implemented through the alignment of tool and material specifications used in the video demonstration with materials commonly available and easily accessible in the domestic market, so practitioners will not encounter logistical barriers in replicating techniques. Instructions in the video also include various practical tips regarding time management, which is a crucial variable for the productivity and profitability of a nail artist. By mastering hand movement efficiency and optimal material application sequences, practitioners can produce maximal aesthetic works within more controlled and business-competitive work durations. Lastly, product optimization is directed at developing the cognitive aspects and artistic reasoning of users through in-depth explanations of aesthetic principles and color theory underlying gradation techniques. This strategically aims for nail artists to not only have the ability to copy technically but also to be equipped with a creative foundation to modify, improvise, and create new original designs based on the principles learned. Thus, this video tutorial functions as a catalyst for the development

of practitioner work authenticity, which is the main key to winning competition in the highly innovation-driven creative beauty industry.

3.4 Analysis Results

Based on the results of converting quantitative data obtained from the evaluation sheet during the development phase, an objective parameter can be drawn regarding the reliability of this learning instrument. The percentage distribution of achievement for each evaluation aspect can be seen in Table 1 below:

Table 1. Recapitulation of Product Validation and Trial Results

No.	Subjek Penelitian	Persentase Skor	Kategori
1.	Material Expert	97.50%	Highly Feasible
2.	Media Expert	98%	Highly Feasible
3.	Limited Scale Test (10 Respondents)	98.38%	Highly Feasible
4.	User Testing (30 Respondents)	96.50%	Highly Feasible

Analysis of the development research data shows factually that the developed video tutorial has reached a very high feasibility standard through a series of rigid testing and validation stages. Evaluation results provided by material experts provide validation confirmation that all content presented has perfect technical accuracy with a percentage achievement reaching 97.50%. This figure represents that the work sequence, chemical material selection, to the demonstration of gradation integration techniques and 3D formation are fully aligned with professional rules and standard operating procedures prevailing in the international beauty industry.

Furthermore, analysis results provided by media experts confirm the aesthetic quality and audio-visual functionality with an cumulative score of 98.00%. The high score in this media aspect is driven by optimal lighting quality, clear narration voice frequency, and the precise use of explanatory graphic elements that significantly help clarify complex technical instructions. Media experts justified that the visual packaging presented has a strong engagement for learners, thereby minimizing the risk of decreased focus or boredom during the video tutorial duration.

Responses obtained from the target user group, namely nail artist practitioners in the Wonogiri region, provide highly satisfying practical analysis results with a satisfaction level of 96.50%. Qualitative analysis extracted from respondent answers shows that this video tutorial is very effective in facilitating the understanding of advanced techniques previously considered to have high learning barriers if studied autodidactically. Visual clarity at crucial stages, such as forming 3D ornament details over surfaces applied with gradation techniques, became the main point of advantage felt by users in tangibly improving their skill portfolios.

Based on the overall synthesis of these analysis results, a scientific conclusion can be drawn that the discrepancy between theoretical foundations and field practice has been successfully bridged through this development media. The very high level of validity from various testing perspectives shows that this product has met the qualifications to be disseminated more widely as a credible standard learning instrument. The quantitative data obtained consistently falls within the "Highly Feasible" category, providing strong legal and academic legitimacy for the effective use of this video tutorial, both in the context of formal vocational education and in independent professional development efforts for the wider community.

4. Conclusions

This comprehensive development research exploration successfully formulated a video tutorial product combining gradation techniques and 3D ornaments as a valid instructional solution in the field of cosmetology and beauty. Through the implementation of the systematic 4D development model, an audio-visual medium was produced that not only possesses superior technical cinematography quality but also has depth of material substance tested academically. Validation from various parties shows that this video tutorial is capable of being an effective, efficient self-education instrument with high adaptability to the dynamics of contemporary creative industry trends.

In conclusion, the significance of this research results impacts the standardization of practical nail artist skills in producing designs with premium aesthetic value. The consistently high feasibility scores prove that this video tutorial is suitable for wide dissemination to bridge the technical information access gap between city centers and sub-urban areas. It is expected that this product can be a catalyst for increasing professional service quality in beauty studios and serve as a basic reference for future research integrating interactive technology in vocational beauty skill learning.

Conflict of interest

The authors declare no conflict of interest

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