



Bamboo Massage Tool as a Learning Media of Body Massage Care Course

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Abstract. This study aimed to determine the validity of the development of bamboo massage tool as a learning media for Body Massage Care course regarding product validity tests, sensory tests, and preference tests. The research method used is Research and Development (R&D), using seven development steps with a quantitative approach. The research subjects are 25 students receiving body care course using media. Data analysis techniques use descriptive percentages. The research results on the product validity test aspect obtained an average total value of 85.38% of the six indicators: shape, size, quality, strength, function and benefits, and ease of use. The sensory test results were 86.02% of the four indicators: shape, size, ease of use, and functions and benefits. The preference test results were 91.06% of the four indicators, namely shape, size, ease of use, and quality. The conclusions from the research based on the validity, sensory, and preference tests are very feasible.

Keywords: Bamboo massage tool, learning media, body massage care course.

INTRODUCTION

Indonesia is rich in plants that can be processed into products with many benefits, including bamboo. Bamboo is a natural resource found in the environment and widely utilized by the community with the following characteristics: straight and sturdy stems, a smooth surface, easy to shape, and easy to split (Lucas, 2013; Akinlabi et al., 2017). Bamboo plants are prevalent and serve numerous functions, classifying them under the Grass Family Bambusoideae category (Afrin et al., 2009). According to data from Bali & Wijaya (2015), bamboo has many benefits for life, including; 1) household furniture, 2) musical instruments, and 3) supporting materials for daily needs. In Indonesia, there are 176 species of bamboo trees (Wijaya et al., 2019), and current research identifies several types of bamboo, namely bamboo *ampel*, bamboo *apus*, bamboo *betung*, bamboo *kuning*, and bamboo *andong* (Suparno, 2020).

The community believes this bamboo has medicinal properties, as the water extracted from its stem can heal irritated eyes and alleviate coughs (Partasmita et al., 2017). Bamboo has strong stems with a smooth and slippery surface and minimal hair attached to the stem (Muhtar, 2020). Therefore, the researcher intends to use bamboo *kuning* due to its smooth and slippery surface, which makes it suitable for being processed into a safe massage tool for the skin.

In general, massage is a traditional healing method well-known by the community, and its techniques and movements are believed to be beneficial for relieving fatigue and stimulating the body's natural healing abilities by applying pressure to specific points on the body (Holey & Cook, 2012). According to Nurvitasari et al. (2023), massage techniques are categorized into two types: national and international massage techniques. National techniques

include Javanese massage and Balinese massage, while international techniques include Swedish massage, Deep Tissue massage, Shiatsu massage, and Lomi-Lomi massage. Some massage types incorporate technology, such as G5, Body Wrap, and Sauna, while traditional methods include Hot Stone massage, Herbal Stamp, and Bamboo massage.

One of the traditional massage techniques is bamboo massage, which minimizes energy expenditure for beauticians while providing intense pressure for clients who desire it (Osorio, 2008). Bamboo massage is a body treatment therapy that utilizes bamboo. It involves using modified bamboo of various lengths and diameters to apply pressure to the body's tissues (Noh & Chon, 2021). This therapy offers several benefits, including 1) relieving migraines, 2) helping manage respiratory conditions, 3) alleviating neck rheumatism pain, 4) improving joint and muscle flexibility, and 5) stimulating cellular activity to repair and nourish the skin (Son et al., 2021).

According to research conducted by Sari & Puspitorini (2017), it is mentioned that in one region on Java Island, the utilization of spa techniques using bamboo massage as a medium has reached a percentage of 22%. Bamboo massage is known in the beauty industry and used as a teaching tool in Body Massage Care course. Kustandi, as cited in Diansari et al. (2017), states that learning media serve as aids in the learning process and clarify the conveyed message, thereby achieving learning objectives more effectively and efficiently. Learning media are crucial for teaching and learning, particularly in Vocational High Schools (SMK) that involve practical learning. The use of media is essential in teaching practices. Body Massage Care course is one of the subjects taught in SMK, specifically in the Beauty and Hairdressing competency. Students will encounter and learn about various types of body treatments in this subject.

Based on an interview with Mrs. Fitria Nurvitasari S.Pd, the teacher in charge of the Body Massage Care course subject at SMK PGRI 1 Kudus, it is stated that Bamboo Massage is one of the topics taught to students in the twelfth grade. This is supported by interviews with three alums from SMK PGRI 1 Kudus, where several issues were identified during the practical implementation of Bamboo Massage. Firstly, there was minimal use of the equipment, with only effleurage and skin rolling movements being possible. Secondly, students often faced difficulties using the *tapotage* technique. They needed more consistency in applying pressure, mainly due to the limitations of the bamboo tools, which were only of a certain length and could not be combined with other movements. Thirdly, if students were not careful in applying the bamboo tools, it could result in severe injuries for the clients/models, such as scratches on the right and left sides due to the rough surface of the tools.

In this study, researchers will conduct research related to bamboo massage, some of the obstacles experienced by students during learning due to problems during the learning process, and some obstacles related to ineffective media, especially in Body Massage Care course. Bamboo media is used as an intermediary tool for body massage with a long shape cut into several sizes, ranging from small to medium bamboo used to massage the body area. The bamboo used for learning measures 15cm, 20cm, and 30cm. Learning outcomes of body massage using bamboo massage in 2022: Only five students out of 25 have reached the standard score because there has been no increase in grades for several reasons that have been explained.

To overcome these problems, the researchers innovated in developing learning media for massage tools from bamboo to create a new model to make it easier for students to use bamboo massage media. The researcher wants to develop a massage tool by modifying the shape aspect so that media can combine various models of body massage movements. Besides being able to be combined, these tools will also benefit and assist therapists in facilitating massage, including: 1. students can set the time for implementation more quickly, 2. students can save the energy expended by using massage tools from bamboo compared to manual massage by hand, 3. models can feel massage from bamboo with various combined massage movements, 4. minimizing work accidents such as cramps in the hand area when doing manual massage; 5. students can perform massage techniques comfortably and ensure skin safety because the tools have been designed according to standards.

Based on the background of various kinds of problems, the author is very interested in solving the problem by developing a bamboo massage tool.

METHODS

The data analysis technique used in this study is a descriptive percentage. The research results include product validity testing with five validators and six indicators: shape, size, quality, strength, functionality, and ease of use. In the sensory testing, five validators assessed four indicators: shape, size, ease of use, and functionality and benefits. In the preference testing, 25 student respondents evaluated four indicators: shape, size, ease of use, and quality. Based on the validity, sensory, and preference testing, the conclusion is that the product is categorized as highly suitable.

The evaluation was conducted using an instrument sheet that experts had validated. The research on the development of Bamboo massage tool obtained results through expert assessments, respondent feedback, and expert panel evaluations.

RESULTS AND DISCUSSION

Preliminary Product Validity Test

Product trials were conducted using internal tests conducted by five expert validators in body care and spas. The evaluation criteria in the internal trials in this study were shape, size, quality, strength, function and benefits, and ease of use. This product trial uses a Likert scale instrument with a score range of 1 as the lowest score and four as the highest score.

Furthermore, the instrument is used as a limited trial instrument / initial product validity test after obtaining the results. The results of a limited trial conducted by five panelists obtained the following results as seen in **TABLE 1**.

TABLE 1. Initial trial results by expert validators





No	Tool	Indicator	Percentage	Average Percentage	Criteria
1.		Shape	95%	88.33%	Very Good
		Size	90%		
		Strength	80%		
		Ease of use	95%		
		Quality	80%		
		Functions	90%		
2.		Shape	80%	86.66%	Very Good
		Size	85%		
		Strength	90%		
		Ease of use	90%		
		Quality	90%		
		Functions	85%		
3.		Shape	90%	85.83%	Very Good
		Size	85%		
		Strength	85%		
		Ease of use	90%		
		Quality	80%		
		Functions	85%		
4.		Shape	80%	82.5%	Very Good
		Size	85%		
		Strength	80%		
		Ease of use	85%		
		Quality	85%		
		Functions	80%		

From the table above, it was obtained that all the results from the panelists showed the highest percentage of 88.33% and the lowest, 82.5%, with a "Very Good" value criterion.

Product Revision

At this stage, it is carried out to find out the shortcomings and weaknesses of the tools that have been developed. This is done to validate the bamboo massage media that has been developed, stating that the media is valid. However, several types of massage tools need to be improved regarding the shape and size of the Cone, Stick, Pressure, and Rollers tools. The first stage of the product revision process follows the directions and instructions from the validator. This process can be continued to the next stage if the learning media is declared valid by five expert validators and has gone through the limited trial stage.

TABLE 2. Suggestions and input for massage tool product validators

No	Product	Validator Suggestion	Revision
1.	AP 1, Cone 	On the handle, the handle can be smoothed again because if the texture is smooth, then the handle can also be used for skin pressure. The finishing of the massage tool can be smoother and shiny. Additional synthetic skin on the cone massager can be added wider to avoid accidents in the process of applying it to the body.	Researchers' efforts to smooth the bamboo surface on the massage tool's handle. This will be revised by researchers with an effort to smooth the surface of the bamboo in AP 1.
2.	AP 2 Stick 	The stick handle on the tool is too small; the reflector is not flexible, so the reflection on the tool, when applied, is not optimal.	Replace the handle with more giant-sized bamboo and replace the reflector with a more flexible type of fishing line so that when it is reflected for maximum application of the sabotage movement.
3.	AP 3, Pressure 	More attention is paid to the finishing of the massage equipment, on the sidelines or on the glue for connecting the bamboo / additional materials for the Pressure tool. It is recommended that the teeth be adjusted to various sizes, considering that the area of the body to which the tool will be applied is different.	Smooth the surface of the bamboo sticks with fine, flat sandpaper and use the toothed stick for pressure. The researcher's efforts for this suggestion are to change the shape of the teeth and massage tools to be extended or widened.
4.	AP 4, Roller 	The grip handle is refined so that the user when using it, is safe and comfortable.	Smooth the surface of the handle by sanding the surface of the bamboo and applying clear paint so that the surface is smoother and gives a shiny impression.

The suggestions and comments from validation will be used as input for researchers to improve massage equipment products so that they become better and add benefits to users.

Limited Trial

A limited trial is the last stage before mass production. Limited trials tested by users were carried out using a questionnaire sheet with a Likert scale and a score range of 1 as the lowest score to a score of 4 as the highest score. The limited trial was carried out by three teachers and 25 students of Skin and Hair Cosmetology at SMK PGRI 1 Kudus from the Class of 2021. The following percentages in **TABLE 3** can categorize the results of the user trials.

TABLE 3. Limited trial results by users via questionnaires

Indicator	N	Percentage	Category
Application Technique	23 Students	90.5%	Very Suitable
	3 Teachers	83.33%	Very Suitable
Comfort	23 Students	92.5%	Very Suitable
	3 Teachers	79.16%	Suitable
Massage Effect	23 Students	93%	Very Suitable
	3 Teachers	79.16%	Suitable
Safety	23 Students	89%	Very Suitable
	3 Teachers	91.66%	Very Suitable
Massage Variation	23 Students	90%	Very Suitable
	3 Teachers	87.5%	Very Suitable
Body Language	23 Students	93.5%	Very Suitable
	3 Teachers	87.5%	Very Suitable

Based on the results of limited trials by users with an average of obtaining the highest percentage of 93.5% and the lowest percentage of 79.16% according to the distributed questionnaire sub-criteria. The following **TABLE 4** is a category of grouping user responses according to data results.

TABLE 4. Categories of user response groupings

N	Interval	Category	Frequency	Percentage
23 Students	76% -100%		1	81.25
3 Teachers	56% - 75%		7	85.41
	< 50%			
		Tall	5	87.5
		Medium		
		Low	2	89.58
			6	93.75
			2	95.83
			5	97.91

Final Product Revision

This stage is the last step in developing the product that has been developed. At this stage, the Cone, Stick, Pressure, and Roller massage tools were given good responses by users, but some respondents gave comments regarding the Pressure massage device; regarding this tool, respondents gave suggestions if it should be enlarged in size according to the width of the body, the tool can have various types and functions.

The researcher gave a response regarding this matter that if indeed the customer/model has a wide body shape, double pressure can be applied to the body parts by lining up the tools. Furthermore, to check the products that have been tested on respondents, through the quality and strength of the product, bamboo massage tools can be used as learning media for massage with a resistance of more than five months.

Discussion on the Validity of Massage Tool Product Development

From the results of research that has been carried out with product trials carried out by expert validators (expert judgment) consisting of heads of Beauty Aesthetics, Expert Beauty Therapy, SPA Trainers, Heads of Skin and Hair Cosmetology Expertise Competency, Lecturers, and Teachers who can massage The bamboo massage tool product

was declared Valid because it met the criteria starting from shape, size, strength, quality, convenience, function & benefits by obtaining the highest percentage of 89.16% and the lowest 81.60% with the criteria value "Very Good."

Product Validity

The initial trial was conducted by five expert validators in the field of SPA and body massage. In this initial trial, the results of the Cone massage tool were obtained, namely 88.33%, obtaining the highest score from all aspects assessed. There was input or suggestions from the validator but very minimal, so only very little product revision was needed.

The second highest score was obtained by the Stick massage tool, which was 86.66%. This tool received praise from the validator, which was very good because the shape of the Cone tool can be used from the tip to the bottom of the tool with the advantage of this tool being able to produce three massage movements with a very sharp tool shape. Comfortable to use.

The third highest score was obtained by the Pressure massage tool, with a total of 85.83%. This tool has good value in terms of shape and other elements, but it needs to be noted that for application to body parts, it must be adjusted to the width and length of this pressure tool; the teeth on the tool must be refined again so that during the practical application of the tool it can be ensured that it is safe.

The lowest score was obtained by the Roller tool, with a total result of 82.5% received advice and input from the product expert validator. The Roller tool can be used, but it is necessary to pay attention to the shape of the tool and the strength produced by this tool. The design and arrangement of the tools are very good; only need to pay attention to safety tools when demonstrated or practiced.

From the overall results, the Cone, Sticke, Pressure, and Roller massage devices are feasible to be tested at the limited trial stage to assess the user's response. However, at this stage it is necessary to make improvements according to the suggestions and comments of product experts to add to the impression that the massage device is suitable and getting better.

Based on the results of limited product trials, to find out the shortcomings and weaknesses of the tools that have been made, this is done for the validation process of the bamboo massage media that has been developed to state whether a media is valid or not. The results obtained from the limited trial obtained excellent assessment criteria with a percentage of 88.33%, and the lowest percentage was 82.5%. From all the data obtained, the development of massage tools from bamboo can be used and developed into learning media for Body Massage Care course.

User response

Based on the results of limited trials by users with an average of obtaining the highest percentage of 93.5%, there are six responses; 89.58% there are two responses; 87.5% there are five responses; 85.41% there are seven responses; and the lowest percentage is 81.25% there is one response by the distributed questionnaire sub-criteria.

CONCLUSION

It was concluded that the development of bamboo massage tools as learning media for Body Massage Care course based on the validity test that had been carried out with a grid of form, shape, size, ease of use, quality, and function benefits of the product was declared valid and could be continued to the internal trial stage. Furthermore, initial trials/product expert validity and limited product trials were carried out with a grid in the form of material, shape, size, ease of use, quality, and function benefits, obtained a score of $\geq 25\%$, and were declared very good. The percentage results from the Validity Test obtained the highest percentage of 89.16% and the lowest, 81.60%, with the criteria of a "Very Good" value. They were followed by the results of the user test, with the highest percentage respondent being 94.64% and the lowest percentage being 87.50%. From all the data obtained, it can be concluded that the massage tool was developed as a learning medium for Body Massage Care course based on research and data analysis that has been carried out.

REFERENCES

1. Afrin, T., Tsuzuki, T., & Wang, X. (2009). Bamboo fibres and their unique properties.
2. Akinlabi, E. T., Anane-Fenin, K., & Akwada, D. R. (2017). Bamboo. *The Multipurpose Plant*, 268.
3. Bali, I., & Wijaya, E. (2015). Flexural Behavior of Bamboo Reinforced Concrete Beams.
4. Diansari, A. A. R., Suratman, B., & Soejoto, A. (2017). The effect of problem-based learning model, learning audio visual media and internship on student's soft skill. *International Journal of Academic Research in Business and Social Sciences*, 7(9), 333-341.
5. Holeý, E. A., & Cook, E. M. (2012). *Evidence-based therapeutic massage: A practical guide for therapists*. Elsevier Health Sciences.
6. Lucas, S. (2013). *Bamboo*. Reaktion Books.
7. Muhtar. (2020). The Prediction of Stiffness Reduction Non-Linear Phase in Bamboo Reinforced Concrete Beam Using the Finite Element Method (FEM) and Artificial Neural Networks (ANNs). *Forests*, 11(12), 1313.
8. Noh, S. S., Lim, Y. S., & Chon, H. J. (2021). A Study on the Differences in Perceptions of Skin Beauties According to the Recognition of Bamboo Therapy. *Journal of Convergence for Information Technology*, 11(7), 232-241.
9. Nurvitasari, F., Suprptoño, E., Kusumastuti, A., & Sutopo, Y. (2023). Development of Soft Skills Oriented to SPA Services (Solus Per Aqua) in the Vocational Education Teaching Factory. *Journal of Vocational and Career Education*, 8(1).
10. Osorio, S. (2008). BAMBOO MASSAGE: The past blends with the present as these stalks enable penetrating maneuvers, saving therapists' hands in the process. *Massage and Bodywork*, 23(3), 84.
11. Partasasmita, R., Iá, Z. A. M. Z. A. M., Atsaury, L. A., & Husodo, T. (2017). The use of forest canopy by various bird species in tropical forest montana zone, the Nature Reserve of Mount Tilu, West Java, Indonesia. *Biodiversitas Journal of Biological Diversity*, 18(2), 453-457.
12. Sari, N. N., & Puspitorini, A. (2017). Pelatihan bamboo massage untuk meningkatkan keterampilan siswa tata kecantikan kulit di SMK Negeri 4 Yogyakarta.
13. Son, S. H., Choi, E., & Lee, S. H. (2021). The Effect of Bamboo Therapy Perception on the Job Satisfaction for Skin Beauty Workers. *Journal of the Korean Society of Cosmetology*, 27(3), 790-799.
14. Suparno, O. (2020). Potensi Dan Masa Depan Serat Alam Indonesia Sebagai Bahan Baku Aneka Industri. *Jurnal Teknologi Industri Pertanian*, 30(2).
15. Wijaya, C. J., Ismadji, S., Aparamarta, H. W., & Gunawan, S. (2019). Optimization of cellulose nanocrystals from bamboo shoots using Response Surface Methodology. *Heliyon*, 5(11).