DEVELOPMENT OF A MODULE BASED ON THE *EMO-DEMO* GAME TO INCREASE THE COMMUNITY'S UNDERSTANDING OF THE CONCEPT OF STUNTING

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ABSTRACT

Modules are a type of printed learning material which is an innovative approach in providing health-related information involving family members as a strategy, especially mothers as the main target in Health Development Efforts. *EMO-DEMO (Emotional-Demonstration)* based games are an option for use in public education. This research aims to develop an *EMO-DEMO* game-based module based on stunting problems. The development model used is the Plomp development model with three stages, namely Premilinary research, Prototyping stage, and Assessment phase. This media development aims to see the effectiveness of the module based on the community's understanding of concepts in Kemiri Village using indicators of concept understanding used by researchers. The development results obtained a validity of 79.8% which is included in the very valid category. The practicality results obtained 92.1% which is included in the very practical criteria. The average N-gain is 0.8 in the high category, supported by the results of the community response of 89.93% which is categorized as high. This shows that the *EMO-DEMO* game-based module has received a positive response from its users.

Keywords: Module, *Emo-Demo*, Concept Understanding, Stunting

INTRODUCTION

A module is defined as a print media format that contains learning units composed of various components used to learning goals independently. So users can control and evaluate abilities independently (Kuswanto, 2019). This module is intended for communities starting from the age range of 16 – 25 years are categorized as early teenagers, 20-25 years are classified as late teenagers and 25 years and older are categorised as adults. (Ghofur & Rachma, 2019). School children belong to the community, but most school children use modules in formal education. While the society (non-formal) does not use the modules, then researchers develop modules for society. (nonformal). The use of modules has an important role for society to improve behavior, this is because the modules have been structured containing material (Wahyuni *et al.*, 2019*).*

Emo-Demo (Emotional-Demonstration) is an interactive educational tool using games to trigger the emotions of mothers or babysitters to change behavior that needs to be improved by society (Putri, 2020). *Emo-demo* is one of the approaches in health education by using imaginative and provocative ways to change people's behaviour in health aspects (Putra *et al.*, 2023). So with this method it can change the behavior of the public in the field of health. Stunting is one of the characteristics that indicates a recurring nutritional problem over a long time. Stunting has been influenced by a number of factors, including mother's nutritional knowledge and maternal care patterns as well as maternal intake. Mother's intake, especially during pregnancy, is an important factor. (Amalia *et al.*, 2022). An understanding of the concept of stunting is very much needed that involves more than just a definition. Understanding concepts is a key aspect in education and dealing with challenges, both in learning methods and in the context of everyday learning. According to Uno, the ability of an individual to deduce, interpret, translate or reveal a concept in his personal style regarding the information he has received. Rosdianto *et al.*, explained that the ability of an individual to acquire an understanding of a concept and to

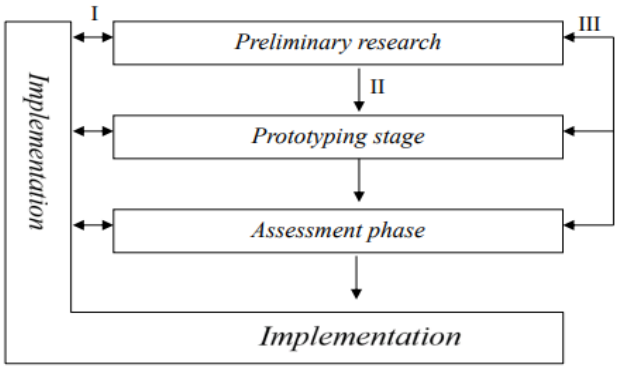
define a matter well (Ramadani & Nana, 2020). It is therefore necessary to improve public understanding of the concept of stunting by involving in-depth understanding of stopping, its causes, impacts, and the efforts that society can make to prevent and address stunting. Based on the above explanation, the development of the *Emotional-Demonstration (Emo-Demo)* based module is required to improve the understanding of the concept of the Kemiri Village community in the health area related to stunting. It is supported by research by Khoirudin *et al.,* (2023), that the development of modules can improve the understanding of concepts for its users. Furthermore, in the study of Falaach *et al.,* (2020), it was found that the delivery of material using the *Emotional-Demonstration* module *(Emo-Demo)* related to stunting prevention is said that the public understands the importance of nutritional needs in children. It shows that with the development and implementation of modules for the effective community can increase the understanding and knowledge of the morning users as well as facilitate the community in understanding.

information through Emotional-Demonstration (Emo-Demo). The previous Emo-Demo module did not contain stunting material, it only contained health educational games related to stunting and generally the module was only used in schools. Meanwhile, this module is intended for people starting from the age range of 16 – 25 years are categorized as early teens, ages 20-25 years are categorized as teenagers end, while those aged 25 years and over are categorized as adults (Ghofur & Rachma, 2019). School children are included in the community category, but most children school children use the module in formal education. Whereas (non-formal) communities do not use modules, therefore researchers develop modules for (non-formal) communities. Module usage has an important role for society to improve behavior, this because the module has been structured to contain material (Wahyuni et al., 2019).

METHOD

The type of this research is research and development with the Plomp research design. The development model used in this research onsists of three stages: Preliminary research is a literature study to obtain an initial description of stunting in Kemiri Village. The next step is an analysis by directly observing the data provided by cadres to midwives, so it was found that there was a low understanding of the concept of stunting among the people of Kemiri Village. Therefore researcher developed a game-based module Emo-Demo to increase conceptual understanding of the Kemiri Village community. At the prototyping stage, the researcher designed a module based on the Emo-Demo game through supporting tools like activity plans and sheets of expert validation. This will produce draft I. If draft I is said to be valid, then continue with draft II. However, on the contrary, if the draft I is not valid, then the researcher can revise it again and revalidate it. The third stage is the assessment phase. At this phase, draft II will be tested by the public to increase conceptual understanding of community in stunting. In the community testing process, the module implementation was observed by the observer to assess the practicality of the Emo-Demo game-based module. The community was given a test sheet for conceptual understanding of stunting before and after education to analyze the bnmodule's effectiveness.

The subjects in this research were 10 people from Kemiri Village, especially pregnant women, mothers carrying out pregnancy programs and mothers who have children.



(Figure 1. Plomp expansion model research stream)

The *Emo-Demo* based development module is being tested in Kemiri Village in September-October 2023. The techniques for collecting data in this research are test and nontest. Tests are done to determine the effectiveness of module development. The test uses indicators of concept understanding and nontes, which are validation sheets, practicality and public response.

There are three expert validators in validating the Emo-Demo game-based module, including a Jember University lecturer in the health sector, a Kemiri Village midwife and a community health center nutritionist. The validation formula, according to Septia *et al.,* (2022) would be used to calculate the average of each validation component based on the validator value.

$$V = \frac{summary\ of\ scores\ to\ be\ worked}{\text{maksimum number}} x\ 100\%$$

Validation values are obtained at the level of interval validation modules based on *Emo-Demo* games on stunting topics. Table 1 shows the validity criteria of the module submitted Wahyuni *et al.* (2022).

Score	Category
$80 \leq V \leq 100$	Very valid or implementable without modification
$60 \leq V < 40$	Valid or implementable but minor modifications
$40 \leq V < 25$	Less valid, less effective, less stringent, requiring major modifications, recommended not to be implemented
$0 < V \leq 25$	Invalid or unimplementable

(Table 1 Module validity criteria)

The test of practicality can be obtained from the implementation of education applied to mothers. The score is calculated using an average of the value of each aspect of performance with the number of scores divided by the amount of evaluation criteria.

Implementation (%)	Category
$k \geq 90$	Very Practical
$80 \leq k < 90$	Practical
$70 \leq k < 80$	Quite Practical
$60 \leq k < 70$	Less Practical
$k < 60$	Very Impractical

Table 2 Module practicality criteria

Testing the effectiveness of understanding the concept of stunting mothers can be obtained from the results of the tests and raising the response of the public. Analysis of the pre-test and post-test tests to find out the understanding of the concepts of stunting mothers combined using the N-gain formula.

G score	Interpretation
$g > 0.7$	High
$0,3 < g \leq 0.7$	Currently
$g \leq 0.3$	Low

(Table 3. Concept understanding category scale)

Response (%)	Category
$75 \leq x < 100$	High
$50 \leq x < 75$	Currently
$0 \leq x < 50$	Low

(Table 4. Community response category scale)

This module consist of :

A. List of contents

B. Material related to stunting and the Emo-Demo game

C. Conclusion of the game

D. Evaluation in the form of answering questions in each game session and material in the module

E. Answer key, this is needed so that people can learn independently regarding stunting information.

RESULT AND DISSCUSSION

The development module based on the *Emo-Demo* game uses the Plomp design development research, where the design consists of three stages: Preliminary research, Prototyping stage and Assessment phase. The results of the research use the following Plomp model stages. Other information was obtained by conducting direct observation of data provided by the cadre to the maid on Tuesday, July 25, 2023 at the Kemiri Village office, Panti Jember. This observation activity was conducted in order to find out stunting data. The observations indicate that the high number of stunting in the village is due to the high rates of early marriage and high school dropout. In Kemiri Village, it is crucial to provide information about

Stunting to ensure that everyone pays close attention to children's nutrition. This is essential to break the chain of stunting in the future. This is demonstrated by data from the Jember 2021 district health department that showed stunting rates in Kemiri village of 29.55%. According to Mawarni research (2020), this can happen because of minimal knowledge of the surrounding public related to the risk of stunting and early marriage. Child health has always been linked to mother's health and is inseparable. The low nutritional intake of one of the children is due to unhealthy eating behavior. The mother's attitude when feeding the child inappropriately is an important factor causing stunting. With this it takes an effort to improve stunting is to improve the attitude towards the mother, so that it can improve the eating behavior of the child. This shows that the understanding of the concept of stunting activities.in Kemiri Village is still low, so there needs to be public education about stunting by developing modules. In addition, it is acquired that there has never been a stunting education by exploiting and using modules aimed at improving the understanding of the stunting concept of the community. Never used modules in education before.

Prototyping stage (design) the second stage is module design, where researchers carry out module development planning and support device planning as well as planning.

At the support device design researchers compile a plan of stunting educational While in the design of instruments that are validation sheets, observations sheets implementation education, public response leaflets and questions pre-test and post-test which are leaflet understanding concepts final and initial. The layout of the module can be understood independently with a layout consisting of, 1). User steps; 2). Language material core; 3). User activity sheet; 4). Assessment; 5). Key answers and assessments (Yuliani, 2019). At this stage the module is created using the editing website canva.com. Next, the module is tested on a team of experts or validators for validation of qualifications. The validation test in this study involved 3 validators. As for the results of the validation module based *Emo-Demo* game as follow.

No	Asesment aspect	Score Interval (%)			Persentase (%)	Category
		Validator 1	Validator 2	Validator 3		
1.	Content	62.5	75.0	75.0	70.8	Valid
2.	Presentation	91.6	75.0	91.6	86.1	Verry Valid
3.	Language	87.5	75.0	93.7	85.4	Verry Valid
4.	Graphics	75.0	75.0	81.2	77.0	Valid
	Average	79.1	75.0	85.3	79.8	Valid

Table 1 Result Validity *Emo-Demo* modules based game

Based on the validity analysis of *Emo-Demo* modules based on the three expert validators, the average percentage of assessment aspects is 79.8% with valid categories. According to Wahyuni *et al.,* (2022) stated that with a value of $60 \leq V < 40$ modules can be said to be valid so that it can be implemented with minor modifications. It suggests that the *Emo-Demo* game-based module to enhance the understanding of the community's stunting concept deserves to be implemented without any modification. This is supported by criteria of construct validity included model rationality,

theoretical and empirical support at each stage of the model, components of planning and model implementation, learning environment of the model, and assessment and evaluation of the model (Wicaksono et al., 2020).

Assessment phase In this third phase a field test module has been completed developed based on Emo-Demo games, to measure the effectiveness and practicality in the process of educational activities. Can be seen in table 2.

No	Assessment activities	Meeting to- (%)			Percentage	Category
		1	2	3		
1	Access media	100	100	91.6	97.2	Very Practical
2	Understand the material	91.6	100	100	97.2	Very Practical
3	Carry out activities	91.6	83,3	100	91.6	Very Practical
4.	Carry out evaluations	91.6	100	83,3	91.6	Very Practical
5.	Evaluate answers	83.3	83,3	91.6	86.1	Practical
6.	Summing up the results of activities	91.6	91,6	83.3	88.8	Practical
Rata- rata skor					92.1	Very Practical

Table 2. Practical results of Emo-Demo game based modules

Based on the Table 2, the average practicality of the observation sheet on the implementation of educational activities shows the average percentage of 92.1% of those classified as highly practical in three meetings evaluated by three observers. According to Wahyuni et al., (2022) explained that k ≥ 90 can be categorized very practically. The evaluation activities consisting of six activities in each meeting, including the participant performing the Emo-Demo game according to instructions and explaining the tools and materials used in the emo-demo game obtained an average percentage of activity of 97.2% categorized as very practical.

In the assessment activities guided the participants in the Emo - Demo game and the participants worked the evaluation sheet on the module as well as giving the educational conclusion independently received an average of 91.6% of activity classified as highly practical. Modules can be said to be very practical when the product developed is easy and can be implemented in learning (Nieveen, 1999).

The effectiveness of the module can be seen from the pre-tet and post-test results as well as the public response to the Emo-Demo game-based module that has been used. The pre-test and post-test consists of seven questions according to the concept understanding indicators. While raising the response of the public by looking at the evaluation score. The results of the test to know the understanding of the concept can be seen through Table 3.

Data	Sample	
	Pre-test	*Post-test*
Sample	10	10
Lowest value	7	85
Highest score	71	100
Avergae value	43.3	93.1
Standard deviation	23.19	6.59
N-gain	0.89	
Category	High	

Table 3. Result N-gain

The gain score for concept understanding is 0.89 where according to Wahyuni et al., (2022) stated that the scale of category g > 0.7 can be categorized high.

The response shake consists of three aspects that lead to the module as well as the material. According to Marisa et al., (2020) is the appearance, presentation of material and benefits. First on the aspect of display the percentage obtained 90.83% can be categorized high. Second on the aspects of presentation of material acquired 90.62 percent can be classified high. Third on the benefit aspects gained 88.33 percent may be categorised high. So from these three aspects the average response of the public is 89.93 can be ranked high. According to Wahyuni et al., (2022) stated that a category scale of $75 \leq x < 100$ can be categorized high. It means that the response of the public, especially the mothers, reached the expected criteria of being very good.

CONCLUSION

The development of the Emo-Demo game based module on the understanding of the stunting concept can be said to be very valid. The practicality of the emo-demo game-based module in stunting educational activities includes very practical. The understanding of stunting concepts after using the Emo-Demo games based modules is increasing and includes a very high category as well as the public response shows a positive response.

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