



# The Effectiveness of Media Modules on Triggering Community-Based Total Sanitation Programs (STBM)

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**Abstract:** The Community-Led Total Sanitation Program is an approach to change sanitation hygiene behavior through triggering activities, which has not yet achieved the national target. This study aimed to analyze the implementation of the Community-Led Total Sanitation Program in a sustainable environment in a suburban settlement. This was a qualitative study with an action research approach in three districts in the Siak River suburb. The participants of this study were residents who lived on the banks of the Siak river and the holders of the Environmental Health Program at the Public Health Center. Data were collected through direct observation and in-depth interviews regarding the Open Defecation Free (ODF) program, handwashing with soap, household food and beverage management, household waste management, and household liquid waste management. This study found that the community-led total sanitation program in the suburban of the three sub-districts of the city of Pekanbaru was not well implemented yet, especially in the ecological aspects of the Open Defecation Free (ODF) program, waste management, and liquid waste management program. Economically, the implementation of the program by non-governmental organizations had not been supported. Socially, health workers and community leaders provided education related to environmental sanitation and obtained a level of interpretation above 70%.

**Keywords:** Community-led total sanitation; Education models; Non-governmental organizations

## Introduction

In the period 2000-2017, there was an increase in the use of clean water services around the world. Population in rural areas by 1.7 million people or 0.48 percent per year. In 2015 there were 85% used clean water services, and 68% used basic sanitation services. 68% of the world's population dies from diarrhea in areas that use unhealthy water and poor sanitation and environmental hygiene (Veerapu et al., 2016; Pruss-Ustun et al., 2004). Indonesia is currently facing problems in the field of sanitation. Hygiene and environmental sanitation are strongly influenced by community behavior, therefore the key to success lies in empowering the community itself (Rehana et al., 2021). Government programs are needed to overcome these problems. The government in (Permenkes, 2014) formulated the Community-Based

Total Sanitation (STBM) program, which is an approach program to change community hygiene and sanitation behavior through community empowerment with the triggering method, which involves community participation with community self-help (Departemen Kesehatan, R. I, 2008). This is also in line with research according to (Sigler et al., 2015) on the analysis of behavior change techniques in the Community Total Led Sanitation program in Washington which found that behavior change is very important for the achievement of the successful of the STBM Program.

Community-Based Total Sanitation (STBM) is an approach to changing sanitation hygiene behavior through triggering activities and is also an adoption of the success of total sanitation development by applying the CLTS (Community-Led Total Sanitation) model (Rehana et al., 2021). What is contained in the STBM

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program consists of a community-based Total Sanitation pillar, hereinafter referred to as the STBM Pillar, namely hygiene and sanitary behavior which is used as a reference in the implementation of Community-Based Total Sanitation (Fitrianingrum, 2018). STBM consists of five pillars, namely Stop Opening Open Defecation (BABS), Washing Hands with Soap (CTPS), Household Drinking Water and Food Management (PAMM-RT), Household Waste Management (PSRT), and Household Wastewater Management (PALRT) (Widyarani et al., 2022; Ghawi, 2018; Scherer, 2021).

From the results of observations in the Pekanbaru City area, there are still households that have not 100 percent (%) implemented STBM, especially seen from several sub-districts drained by the Siak are still people who defecate on the banks of the river. This is certainly a source of disease transmission for the community and is very disturbing in terms of aesthetics due to the smell that is caused, besides that houses and the surrounding environment are still found that do not meet health requirements, and there is no wastewater disposal channel and the habit of littering. In this case, it can be seen from the indicators that a village has STBM: 1). First Pillar: If the whole community already has access to and uses latrines; 2). Second Pillar: If all houses already have CTPS facilities; 3). Third Pillar: If the whole family has treated water before drinking and stored it in a clean and safe place; 4). Fourth Pillar: If the whole house already has a trash can/pit; 5). Fifth Pillar: If all houses have disposed of sewer/infiltration pit wastewater (Ganing & Hairuddin, 2016).

The triggering of STBM by the Pekanbaru City Health Office is still prioritized on the first pillar, namely, Stop Opening Open Defecation, but in this study, the researchers also discussed four other pillars, namely Hand Washing with Soap, Management of Drinking Water, and Food in the Household, Household Waste Protection, and Household Liquid Waste Protection (Ahsan et al., 2014; Abdel-Shafy & Mansour, 2018; Gutberlet & Uddin, 2017). The monitoring of these five pillars is expected to determine the Community-Based Total Sanitation Program (STBM) implementation in the community.

Based on the researcher's initial survey, the Siak River passes through several sub-districts in Pekanbaru City. Pekanbaru City consists of 12 sub-districts with 58 sub-districts, only 3 sub-districts are crossed by the Siak River. The following are the districts that the Siak River passes through:

#### *District Fifty*

According to the initial survey, the Lima Puluh sub-district consists of 2 villages that the Siak river passes through, namely the Tanjung Rhu Village and the Pesisir Village with an area of 2.54 km<sup>2</sup>. This area is also a

sediment of rivers and swamps, most of which are prone to inundation and flooding.

#### *Payung Sekaki District*

According to the researcher's initial survey, the Umbrella Sekaki sub-district consists of one village that the Siak River passes through, namely Air Hitam Village. This area is also a sediment of rivers and swamps, most of which are prone to inundation and flooding.

#### *Coastal Rumbai District*

According to the researcher's initial survey, the Rumbai Pesisir sub-district which the Siak river passes through consists of three villages, namely Meranti Pandak Village, Tebing Tinggi Okura Village, and Limbungan Village. This area is an area formed from river deposits and swamps that are prone to flooding. This study aims to analyze the application of the STBM program to a sustainable environment on the outskirts of the Siak River, Pekanbaru City, analyzing community self-help in the application of STBM to a sustainable environment on the outskirts of the Siak River in Pekanbaru City and finding an educational model in implementing the Community-Based Total Sanitation Program (STBM) for a sustainable environment.

## **Method**

### *Target*

The target is the population living on the banks of the Siak River with a total of 386 households STBM method. The research was carried out in the Pekanbaru City Region which includes three sub-districts traversed by the Siak River, namely Payung Sekaki District, Rumbai Pesisir District, and Limapuluh Kota District. This study uses a survey type of research (quantitative-qualitative mix) which aims to obtain in-depth information about educational trends toward the implementation of the STBM Program in Pekanbaru City in 2018. Data collection techniques were carried out through observation and interviews.

### *Intervention*

This study uses the STBM program educational intervention with the Education Module facility. According to (Nurlatifah et al., 2021) the module is a learning process regarding a particular unit of discussion that is arranged systematically, operationally, and directed for use by students, accompanied by guidelines for its use by teachers. In this study, the module produced goes through stages in a flow, starting from problem identification and then identifying characteristics, so that goals can be formulated and theory development about STBM, from the series, can be designed starting from the principles, and objectives of STBM and accompanied by interesting

pictures. and instructions for implementing STBM (Syam & Asriani, 2019); (Octavia et al., 2020); (Rahmuniyati & Sahayati, 2021). After the module is designed, an expert test is carried out involving design experts, STBM program holders, and health promotion experts, this activity is preceded by FGD (Focus Group Discussion) activities, then validation is carried out from each of these experts, and the module also goes through several revisions, then the effectiveness test is carried out to the community and validation is also carried out. The module development flow chart can be seen in Figure 1.

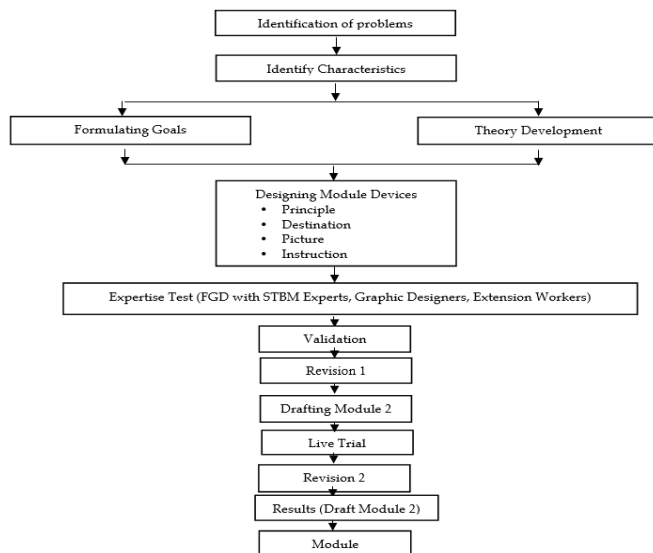


Figure 1. The flow of the STBM Education Module

Module Validity

The validity of the module used in this study is to use a questionnaire and observation.

Questionnaire

There are 2 types of questionnaires used in the data collection process in this study, namely expert validation questionnaires (design experts, STBM program holders, and health promotion personnel) and module assessment questionnaires by the community. Questionnaires given to design experts, STBM program holders, and health promotion staff were used to determine the feasibility of the module as an STBM Program Education medium, while the questionnaire given to the community was to determine the level of public understanding of the module content as an indicator of the effectiveness of the module being made.

Observation

Observations made to the community aim to determine the community's application of the 5 pillars of STBM.

Learning Outcome Test Sheet

This test is made based on the objectives to be achieved, namely to determine the community's ability

to master STBM material. The tests tested are presented in a questionnaire to train the community to apply the 5 pillars of STBM with their ideas in addition to being guided by the module.

The questionnaire I, module validation sheet by design experts, STBM program holders, and health promotion personnel.

The questionnaire I for design experts, STBM program holders, and health promotion personnel is given at the validation stage, then the questionnaire data will be analyzed descriptively quantitatively, by using percentages in the form of descriptions and exposure to learning media in the form of modules developed. The percentage of the questionnaire data was obtained based on the overall score calculation. The provisions of the score used as the rating scale can be seen in Table 1.

Table 1. Validation score conditions

Criterion	Score
Not very good	1
Not good	2
Pretty good	3
Good	4
Very good	5

To calculate the percentage of eligibility for each indicator, the calculation formula used is Equation 1.

$$K = \frac{F}{N \times I \times R} \times 100\% \tag{1}$$

Information:

- K = Percentage of eligibility criteria
- F = Total number of respondents' answers
- N = Highest score in the questionnaire
- I = Number of questions in the questionnaire
- R = Number of raters (Riduwan, 2009).

Questionnaire II, Community Response Sheet

Questionnaire II for community responses given during the trial, the results will be analyzed descriptively. The provisions of the score used as the rating scale can be seen in Table 2. below:

Table 2. Assessment of Learning Media

Criterion	Score (%)
Not very good	0 - 20
Not good	21 - 40
Pretty good	41 - 60
Good	61 - 80
Very good	81 - 100

(Source: Riduan, 2019)

To calculate the percentage of eligibility for each indicator, the calculation Formula is 2.

$$K = \frac{F}{N \times I \times R} \times 100\% \tag{2}$$

Information:

K = Percentage of eligibility criteria

F = Total number of respondents' answers

N = Highest score in the questionnaire

I = Number of questions in the questionnaire

R = Number of raters

(Riduwan, 2009).

## Result and Discussion

### Module Validation By design experts

The feasibility of the wiper and washer system module is assessed from 3 general aspects, namely design, content (engineering), and module language, using a module validation sheet (questionnaire). The assessment of these three aspects is carried out by a graphic design expert who has competence in design, content (engineering), and language skills. The module validation technique is by placing a checkmark in the evaluation column of the available validation sheet. On the module validation sheet, there is also a suggestion or input column that can be filled in by the module validator, where the suggestions and input are used as guidelines for module improvement/revision. In detail are as follows:

**Table 3.** Module validation results by design experts

Aspect	Score (%)
Illustration	83.32
Format	74.64
Face or Cover	73.43
Average percentage	77.13 (Good)

### Module validation by STBM program holder

**Table 4.** Results of Module Validation by STBM Program Holders

Aspect	Score (%)
Characteristics	76.06
Contents	78.65
Manners	86.67
Average percentage	80.64 (Very good)

### Module Validation by Health Promotion Expert

**Table 5.** Results of Module Validation by Ali Health Promotion

Aspect	Validation			Total Score	Score (%)
	Score	Score	Score		
Language	4	4	4	12	80.00
Language rules and vocabulary	5	4	4	13	86.67
Instructions and orders	4	4	4	12	80.00
Total Prosentase Validasi Modul					82.20

### Effectiveness of Education on the Community

The effectiveness of STBM Education by using the module will be analyzed descriptively quantitatively and the data obtained during education using the module and during education without using the module. This comparison is done by comparing the test group that uses the module, with the group that does not use the module. The following is a table of values for the K2 group and the K3 group. This is in line with the results of Susanto's research (2018) where there is a significant relationship between the use of media modules on educational success, which is indicated by an alpha < 0.05.

**Table 6.** Comparison of values between classes using modules and not using modules

Type	Average value Pre-test (%)	Average value Post-test (%)
Using Module (K2)	56.25	84.10
Without Using Modules (K3)	36.40	56.00

From the Table above, the pre-test and post-test scores from the community were obtained. It is known that the people who used the module (K2 group) were declared successful at 84.1% in the posttest while in the pretest only 56.25% were successful. While in the K3 group, the pretest was only 36.4%. Meanwhile, in the post-test, the K3 group obtained a percentage of 56%. If it is seen from the increase in scores between the pretest and posttest groups using the module and without using the module, the group using the module got an increase in score of 26.6.

The group without using the module got an increase in value of 14.63. this shows the effectiveness of using the module with conventional learning. Those who use the module have more satisfying results because, in education, the community can learn more about the application of the 5 pillars in the module if in the education process the community does not understand. Education using modules makes the community more active in the learning process because in the module they face problems or activities that must be completed. Meanwhile, without using the module, the community only depends on the knowledge provided. It can be concluded that learning using modules is more effective than without using modules.

Achievement of feasibility the module that has been completed is validated by 3 validators. Based on the validation results, it is known that the developed module is very suitable to be used as a learning medium. In conducting validation, there are several aspects to be considered. These aspects include characteristics, content, language, illustrations, format, appearance or cover, and module manners.

The results of the validation on the characteristic aspects of the module show an average percentage of



76.06%. This shows that people will easily understand in learning the module because the language used in writing the module is easy to understand and the module can be used without relying on and not using other sources because the material in the module has met. The lowest score is found in adaptive module points at 67%. Due to the limited literature and knowledge of the researchers, the material in this module according to the validators has not adapted to the development of science and technology. It needs to be adapted to the development of science and technology. The other characteristics of the module get an even score. These properties or characteristics are very important to be applied to the module because with these properties the community and stakeholders can use the module well (Nurlatifah et al., 2021; Sofia et al., 2020).

In the aspect of content, the average percentage of module validation results is 78.65%. The lowest score was 73.3% and the module material covered aspects of knowledge and memory. For the developed module to be taught properly by STBM program stakeholders in the educational process, the module must be adapted to more creative STBM material and the development of science and technology. This module must be free from SARA problems so that it does not cause division and can be accepted by the community. The lowest score of 73.3% lies in other assessment points. This is due to the limited literature that the author has about the material in the module. So that the illustrations in the module must be interesting and clear so as not to make it difficult for the participants.

The validation results on the aspect of the module format show an average score of 74.64%. The highest score of 80% lies in the numbered points in the clear module. The numbering in the module is clear and orderly so that the reader does not get confused in learning. It is important to generate interest. If the module looks less confusing, people will be more enthusiastic about learning the module. Assessment The points contained in this aspect have an even rating. The average percentage of 73.43% lies in the face or cover aspect. In this aspect, three points get an even score and the highest is 80%. The selection and arrangement of words and images make the cover of this module more attractive. The cover of the module is designed in such a way as to arouse interest and desire to read. The average percentage is 86.67% in the aspect of manners. All points contained in this aspect receive an equal rating from the validator. Manners are very important to be applied in the module. The content, language, illustrations, and other components of the module must also not conflict with Pancasila and the 1945 Constitution, and not endanger security, unity, and national stability. In addition, the module components developed must be

protected from things that can cause SARA problems and must avoid the impression of pornography.

In general, the validation results obtained a total average score of 79.93%. These results indicate that the module developed is in the very feasible category, this category is shown from the validation results that reach the interpretation criteria of 70% by the provisions. Module development has been carried out and studied in various fields including (Chrisyarani & Yasa, 2018; Irman, 2020; Mohamed Abdelmohsen, 2020; C. Cruz & C. Rivera, 2022; Hardeli et al., 2022).

## Conclusion

Based on the results of the study, shows that the 5 pillars of the STBM program in each sub-district have not been implemented properly, so they are still far from reaching the national target. This can be influenced by community behavior factors and can also be caused by the not yet maximally related sectors in the implementation of this STBM program. All sub-districts have not implemented community self-help in funding the implementation of STBM, this is due to the behavior of the people who do not consider the STBM program important. The model produced in this study is in the form of scenarios and modules that can be used by health extension workers as a guide or guide in implementing the correct STBM counseling to the community so that a sustainable environment can be implemented.

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