

## Developing a Rubric for Teacher`s Self-Efficacy and Teaching Competency in Drug Education Based on the ADDIE Model

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### Abstract

The drug prevention programs in school were conducted in curricular and co-curricular activities by involving all parties to participate such as head masters, administration staffs, teachers, students and parents. In terms of curriculum, classroom teachers had significant role in drug education to integrate their teaching-learning topics with drug abuse prevention among students. This study aimed to use analysis, design, development, implementation and evaluation (ADDIE) model to develop the rubric for teacher`s self-efficacy and teaching competency in drug education. The methodology used in this was research and development research by using ADDIE Model to enable the system to achieve the educational rubric in assessing teachers` self-efficacy and teaching competency in drug education. The results indicated that the use of ADDIE Model matched to develop the rubric to assess efficacy and competency of classroom teachers in integrating drug prevention topics in teaching-learning situation following five phases. The study concluded that the ADDIE model can be adopted to develop assessment tools to measure teacher`s abilities and it helps to improve teacher`s self-efficacy and teaching competency in drug education in Malaysian secondary schools.

**Keywords:** Assessment, Classroom, Curriculum, Drug prevention, Teaching-learning

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## INTRODUCTION

Drug education is a term that used to describe the activities of classroom teachers integrating drug topics to their subjects in teaching learning situation. According to Ilo and Nwimo (2017) the involvement of parents, teachers, health workers and even students is important in drug education programs. A formal drug education in the secondary school curriculum where teachers might have the opportunity of providing scientific information on drug and drug-related matters to the students. It means that drug education is an integral part of secondary school curriculum in order to get every teacher compulsorily involved in the provision of drug information. Meehan (2017) emphasized that teachers should have responsibility for drug education by integrating learning topics with drug abuse prevention in their classes. The information model is a common approach to drug education in schools that information-based approaches provide knowledge about drugs based on the assumption that young people take drugs because they lack



information about the dangers. This traditional response to drug prevention usually took the form of sessions that emphasised and dramatized the negative aspects of drug use and often drug users. The role of classroom teachers in drug education is crucial to carry up drug prevention in classroom discussion based on scientific approach and gather the students` perspectives in the classroom situation (Hizriani et al., 2022; Najwan et al., 2022).

Teacher`s Self-Efficacy (TSE) and Teaching Competency (TC) of classroom teachers in drug education are interested to explore since they have been involved in drug abuse prevention in curriculum context. Teachers` self-efficacy is one of the important factors to determine the success of drug education because it has related to teachers` belief about their abilities to organize and execute drug topics in their teaching learning in the classroom (Handrianto et al., 2020). Drug prevention program in the school depends on how far teachers` belief inability to plan instruction and accomplish instructional objectives during the teaching-learning process (Matt et al., 2022; Nengsih et al., 2022). Teachers with good self-efficacy have a strong commitment to adopt innovation and pay more attention to solve the student`s problem in drug abuse. Teaching competency of teachers in drug education involves subject knowledge as well as pedagogical knowledge of teacher to deliver a message the danger of drug abuse to the students (Handrianto et al., 2021a). Teachers should have the ability to elaborate their teaching-learning process to integrate drug prevention program. In this situation, the skill of the teacher is needed to work with students, colleagues, and other professional that are responsible to prevent drug abuse in their school.

Rubric development of TSE and TC is important to measure the abilities and performance of subject teachers to integrate drug education in learning topics. Rubric is an assessment tool of teacher`s progress in teaching environment that can articulate expectations by listing criteria to describe the level of achievements (González-Andrés, & Urbano, 2018). A rubric can be used repeatedly and therefore is able to assess changes in understanding, knowledge or performance over time. It also can be used as a professional practice tool to track developmental trajectories of teachers in drug education. When used with a careful selection of evidence, a rubric can lead to inferences with high levels of validity and reliability (Edwards, 2017).

ADDIE Model is suitable for the development of instructional or teaching modules because it is a systematic approach for design, development, implementation, and teaching evaluation (Alwi & Kamis, 2019). It also can be adopted to determine the learning goals based on student learning centred, innovative, genuine and reliable (Pernantah et al., 2022; Ramadhani et al., 2022). This study aims to use ADDIE model to develop rubric for TSE and TC in drug education by following five phases, analysis, design, development, implementation and evaluation.

## **RESEARCH METHOD**

Methodology used in this study is based on research and development research adopting ADDIE model by Rossett (1987). The researchers followed the five phases in ADDIE model to develop rubric for teacher`s self-efficacy and teaching competency in drug education. ADDIE model is one of the systematic

teaching design models. It was chosen in this study based on the consideration of this model to develop systematically and rests on the theoretical foundation of assessment in teaching design (Sarte et al., 2021; Rahman et al., 2022). This model is structured programmed with sequences of systematic activities in efforts to solve teaching problems related to rubric development on teacher`s self-efficacy and teaching competency of classroom teachers in drug education that are in accordance with the needs and characteristics of the teachers.

## RESEARCH RESULTS AND DISCUSSION

The development of rubric for TSE and TC in drug education in this study followed five phases on ADDIE Model, analysis, design, development, implementation and evaluation. Every phase needs to be explained in systematic steps as a guideline for other researches in building similar assessment tools with this study.

Table1. Using ADDIE Model to Develop Rubric for Teacher`s Self-Efficacy and Teaching Competency in Drug Education

<b>Phases in ADDIE Model</b>	<b>Steps</b>	<b>Action to develop rubric</b>
<b>Analysis</b>		a) Conduct quantitative and qualitative study related to teacher`s self-efficacy in teaching competency in drug education.
		b) Study of the need analysis to develop rubric in drug education based on teacher`s perspective.
<b>Design</b>	Introduction	Initial introduction why rubric needs to develop.
	Objectives of rubric	Determine the objective of rubric by arranging constructs.
	Method in rubric development	a) Explain what method is used in rubric development. b) Design rubric framework
	Target population	Determine what are criteria of teachers who will be targeted to apply the rubric.
<b>Development</b>	Develop rubric`s framework	Start to develop rubric framework based on constructs in TSE and TC.
	Determine assessment criteria	Explain the criteria for each level in assessment form such as excellent, good, satisfying, less satisfying and not satisfying.

	Build the appropriate sentence structure	Fully writing process of rubric development.
	Improve rubric`s writing	Editing and improving the quality of rubric.
<b>Implementation</b>	Decide school target	Determine the schools to apply the rubric.
	Select teacher`s subject	Communicate to the school headmasters related to the teachers will be observed.
	Observe in teaching learning situation	The observers enter the classes to observe teachers in drug education.
	Fill in assessment form	The observers fill in the assessment form in rubric.
<b>Evaluation</b>	Evaluation of rubric	The complete rubric is evaluated by the experts from universities to get the content validity.
	Evaluation of teacher`s self-efficacy and teaching competency	It measures the TSE and TC of the subject`s teachers in drug education based on assessment form which filled in by the observers.

### Analysis Phase

The analysis phase, in fact, presents a planning phase in which it is necessary to identify the basic parameters that will be traceable in other phases of the ADDIE model (Alnajdi, 2018; Yeh, & Tseng, 2019). The rubrics development was needed to assess teacher`s self-efficacy and their teaching competency in drug education. The findings of this study identified the essential components which had significant roles in teacher`s self-efficacy and teaching competency in drug education (Hafnidar et al., 2021; Handrianto et al., 2021b; Ramadhani et al., 2021). The survey and semi-structured interview had explored the components of teacher`s self-efficacy such as efficacy in student engagement, instructional strategies, and classroom management. The components of teaching competencies such as teaching planning, curriculum application, pedagogical knowledge, using technology, classroom environment, and social competency were also needed by the classroom teachers in drug education.

### Design Phase

In this phase, the researchers begin to create their project on rubric development. The information is gathered from the analysis phase, in conjunction with the theories and models of instructional design that is meant to explain how the constructs will be acquired (Cahyadi, 2019; Stapa & Mohammad, 2019). There were four steps in design phase of rubric TCE and TC in drug education. The steps were explained as below:

### *Introduction*

At this phase, an initial introduction was made as to why these rubrics needed to be developed. It started from the issues of drug prevention education by subject teachers in the classroom. Some constraints faced by teachers had been identified, such as: lack of knowledge of teachers in integrating the topic of drug education in their subjects, there was no standard guidance given by the Ministry of Education, the problem of using technology in drug prevention and so on. All these problems were related to efficacy and competency of teachers in carrying out teaching activities in the classroom. This rubric was designed to evaluate and assist teachers based on the evaluation results of their TSE and TC in drug education. The design of this rubric took into account current issues and challenges faced by subject teachers in drug prevention education in their classroom.

### *Objectives of rubric*

In this design phase, the objectives of the TSE and TC rubrics were also explained. This rubric was developed as an evaluation instrument or tool for measuring the teacher's self-efficacy and teaching competency of teachers in integrating drug prevention education in their teaching learning activities. The subjects that touch on the topic of drug prevention needed to be developed so that it became an interesting learning and motivated students to discuss the dangers of drugs in their lives.

### *Method in rubric development*

The method used to develop rubric was also explained in the design phase. The method used in developing of TSE and TC rubrics was adapted from the ADDIE model, which starts with the phase of analysis, design, development, implementation, and evaluation process. These five steps would be a guideline in the preparation of the next rubric development, so that the developed rubric can be used to help teachers in drug education in their classes.

### *Target population*

The target population was also discussed in this design phase. Subject teachers in secondary schools were the target population in this study. The facilitator brought this rubric into the class and evaluated the teacher's TSE and TC while observing their teaching activities. After filling in the evaluation form, the scores were calculated, and the results showed the extent of the teacher's efficacy and competency in drug education. Teachers who got high marks mean that there was no problem in their teaching and asked to be retained. Meanwhile, teachers with low marks needed to be helped to improve their TSE and TC in drug education, so that they would perform better in the future.

### **Development Phase**

The development phase involves the transition from the contemplative to physical implementation (Trust & Pektas, 2018; Budoya et al., 2019). At this stage, the final structure and content of the rubric are created in accordance with all

the elements and parameters defined in the previous two phases. This phase is developed to be four steps, such as:

*Develop rubric`s framework*

In the development phase, the previously rubric framework was developed into a complete rubric. The components found in TSE and TC in drug education in secondary schools were highlighted, so that they supported each other and are related to objectives of rubric. The development of this rubric framework also took into account the level of secondary school teachers' needs in learning, so that this rubric could be measured teachers in drug education and utilized by stakeholders.

*Determine assessment criteria*

Evaluation criteria needed to be determined to measure teachers' TSE and TC in drug education at public secondary school. Each criterion determined the grade and level of achievement of teachers in their teaching process that integrated on the learning topic to drug prevention. Next, these criteria were quantified in the form of numbers to be analyzed in the final phase in determining the TSE and TC of teachers in the school as a whole.

*Build the appropriate sentence structure*

The TSE and TC rubrics that had been developed needed to be constantly checked in the sentence structure, so that the evaluators really understood what they should evaluate later. In addition, the sentence structure used could also make it easier for evaluators to explain this rubric to the subject teachers.

*Improve rubric`s writing*

The improvement of writing quality needed to be done so that this rubric was easy for schools to use in measuring the TSE and TC of their teachers in drug education. Researchers had involved language experts to check the content of the writing in the rubric in the improvement process.

**Implementation Phase**

The implementation phase represents the first test of making the entire rubric (Bamrara & Chauhan, 2018; Zulkifli et al., 2018). During the implementation phase, a procedure for training the observers related to how to fill in assessment form and criteria (Herlina et al., 2021; Saputra et al., 2021). This phase can be divided into four steps as below:

*Decide school target*

In this implementation phase, researcher contacted and communicated with school`s stakeholders to carry out a study on TSE and TC of teachers in drug education. Researcher needed to list the names of the schools to visit and asked permission from the school.

*Select teacher`s subject*

After getting permission to come to the school, the researcher chose the classes that discussed the topic of drugs in their studies. There were four main subjects that could be observed using this TSE and TC rubric, namely: Physical and Health Education, Islamic Education, Malay Language, and Moral Education. Researcher and evaluators need to get permission from the school and the teachers to enter their class.

#### *Observe in teaching learning situation*

The evaluators observed the teachers while they taught and discussed the topic of drugs in their teaching-learning process in the classroom. In this situation, the evaluators couldn't interfere the process, but they could only act as an observer.

#### *Fill in assessment form*

The evaluator filled out the learning evaluation form about TSE and TC of teachers in drug education. Evaluation had to follow the objectives by taking into account the criteria found in the rubric.

### **Evaluation Phase**

Evaluation is one of the important phases in ADDIE Model to measure the effectiveness of rubric (Djojo et al., 2021; Morales-González, 2022). Evaluation was the last phase in rubric development of TSE and TC in drug education. The evaluation process was divided into two categories, such as evaluation of rubric itself and evaluation of TSE and TC in drug education by using rubric.

#### *Evaluation of rubrics*

The developed rubric needed to be evaluated for improvement. The evaluation of this rubric involved education experts and secondary school teachers as practitioners. Their input and suggestions were considered for improving the quality of the rubric. Data related to rubric evaluation could be found in the validating process at the end of the research question of this study.

#### *Evaluation of teacher`s self-efficacy and teaching competency*

This evaluation was done after the evaluators filled out the TSE and TC evaluation form based on their observations in the class during teaching activities by the teachers. The evaluation was conducted by paying attention to the criteria that had been explained in the previous phase.

Table 2. Scores of Teaching Competency and Teacher`s Self-efficacy in Drug Education

Name of teacher :  
Subject :  
School :

Assessment Aspect	Component	Scores						Percentage of Component	Percentage of Overall Marks
		0	1	2	3	4	5		
<b>Teaching Competency (TC)</b>	Teaching planning								
	Curriculum application								
	Pedagogical knowledge								
	Using technology								
	Classroom environment								
<b>Percentage of scores of Teaching Competency (TC)</b>									<b>%</b>
<b>Teacher`s Self-Efficacy (TSE)</b>	Student engagement								
	Instructional strategy								
	Classroom management								
<b>Percentage of scores of Teacher`s Self-Efficacy (TSE)</b>									<b>%</b>
<b>Total Score</b>		<b><u>TC+TSE</u></b>		<b>100%</b>					
		<b>200</b>							

Table 2 shows the assessment form of teaching competency and self-efficacy of classroom teachers in drug education. The observers carry up this form to the class to evaluate teachers in teaching learning situation. The total score of TSE and TC can be calculated based on criteria that are shown by teachers in teaching. Every construct in this form can be measured and it will provide information to the evaluators in what aspect the teachers facing the problems in integrating drug topics in their classes.

## CONCLUSION

This study aims to develop rubric for teacher`s self-efficacy and teaching competency in drug education based on ADDIE Model. The ADDIE Model is an essential instrument that can help researchers to develop rubric as an assessment tool to measure classroom teachers in teaching learning situation. According to the result, each phase in ADDIE model can be a guideline to develop

the rubric framework and also evaluation criteria. This rubric can be used by the Ministry of Education to evaluate competency and self-efficacy of secondary school teachers in Malaysia in drug education. The results of the assessment form in the rubric can help policy makers to formulate training, workshop and guidebook that can help subject teachers to improve their professional attitude and knowledge in integrating drug topics in teaching learning situation in their classroom.

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