



**THE MANUAL OF PROFESSIONAL COMPETENCE OF THE PROSPECTIVE  
GRADUATES OF MATHEMATIC EDUCATION  
FACULTY OF ISLAMIC EDUCATION AND TEACHERS TRAINING  
THE STATE ISLAMIC UNIVERSITY OF NORTH SUMATRA MEDAN**

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**Abstract.** *The purpose of this study is to find out: 1) Feasibility of the professional competence manual for prospective graduates of Mathematics Education at Faculty of Islamic Education and Teachers Training of the State Islamic University of North Sumatra Medan. 2) The student's response to the guidebooks for Professional Competencies in Undergraduate Mathematics Education Department of Faculty of Islamic Education and Teachers Training of the State Islamic University of North Sumatra Medan. This is Research and Development type that is using a model developed by Thiagarajan which is a 4 D (Four D) model consisting of 4 stages, called define, design, develop, and disseminate. The results of this study are that the professional competency guideline book for Mathematics Education graduates has met the valid and practical criteria which can be seen from the average recapitulation of the results of the validation team's assessment obtained by 3.43 with good criteria. So that the lattice guidebook is suitable to be used in lecture programs. In general, the students' response to the Mathematics Education student professional competency guidebook book was very positive, which was 87.55%.*

**Keywords:** Manual, Professional Competence, Mathematic Education, Faculty of Islamic Education and Teacher Training, UIN of North Sumatra

## **INTRODUCTION**

To help students prepare themselves to pass the exam, a guidebook containing a grid is needed to improve teacher professionalism in teaching mathematics. Therefore, it is very necessary for a study that aims to produce a grid of guidelines as a guide in mastering mathematical material. This book is used as a guideline for all students of FITK UIN SU Mathematics Education Study Program which aims to improve the quality of teaching and deepening the material that must be mastered by each alumni.

The grid manual is designed with an explanation of the four competencies that must be possessed by everyone who wants to become a teacher. In addition, this book describes various kinds of subject matter / compulsory mathematics which are certainly related to mathematics courses. So it is very suitable for students of mathematics education study programs to improve quality and professionalism in teaching. This book also features several examples of questions that can provide an overview of the test of mastery of the basic material.

From the description above, the Mathematics Education Study Program of UIN North Sumatra will make a new policy as an effort to prepare its graduate students to have this professional competence. The policy in question is in the form of a Professional Competency Test that must be followed by every student. The standard of graduation of this Professional Competency Test is 75. If students do not meet this graduation standard, students are required to repeat this Professional Competency Test until they pass. This graduation of the Professional Competency Test is used as one of the requirements to register for the Munaqosyah Session. For this reason, this Manual of Professional Competency Lines for FITK UIN North Sumatra Medan Mathematics Education is a very useful guidebook for students to prepare for mastery of their school mathematics material so that they can graduate in the Professional Competency Test.

## **LITERATURE REVIEW**

### **Pedagogic Competence**

According to Law No. 14 of 2005 concerning teachers and lecturers, pedagogical competence is an ability in the management of students. The definition of pedagogic competence proposed by Trianto (2006: 63), pedagogical competence is the ability of a teacher in managing the learning process of students. This pedagogic competency

includes understanding of students, designing learning, evaluating learning outcomes and developing students to actualize their various potentials.

In the National Education Standards, the explanation of Article 28 paragraph (3) point (a) is stated that pedagogic competence is the ability to manage student learning which includes understanding of students, designing and implementing learning, evaluating learning outcomes, and developing students to actualize various potential it has.

### **Personality Competence**

Sagala (2011: 33-34) says that when viewed from the aspect of psychology, the personality competencies of the teacher show personal abilities that reflect personality as follows:

- 1) Stable, namely having consistency in acting in accordance with legal norms, social norms and applicable ethics;
- 2) Adults which means having independence to act as educators and have a work ethic as a teacher;
- 3) Wise and wise, that is how it looks beneficial for students, schools, and the community by showing openness in thinking and acting;
- 4) Authoritative namely the behavior of respected teachers so that it has a positive effect on students; and
- 5) Have noble character and have behaviors that can be imitated by students, act in accordance with religious norms, honest, sincere, and helpful.

Whereas in Law No. 14 of 2005 concerning Teachers and Lecturers, personality competence is a strong, stable, mature personality ability, wise and wise, authoritative, noble, an example for students and society, evaluating their own performance and developing themselves independently and sustainable. Whereas in Law No. 14 of 2005 concerning Teachers and Lecturers, personality competence is a strong, stable, mature personality ability, wise and wise, authoritative, noble, an example for students and society, evaluating their own performance and developing themselves independently and sustainable.

- 1) A steady and stable personality
  - a) Acting in accordance with legal norms.
  - b) Acting in accordance with social norms and proud as a teacher.

c) Having consistency in acting in accordance with the norm.

2) A wise personality

Showing actions based on the usefulness of students, schools, and the community and showing openness in thinking and acting.

3) Authoritative personality

Having behavior that has a positive effect on students and has respectable behavior.

4) Be noble and can be an example

Acting in accordance with religious norms (faith and piety, honest, sincere, helpful), and having behaviors that are emulated by students.

### **Social Competence**

Mulyasa (2007: 182) says that teacher social competence is the ability of teachers to prepare students to be good members of society and the ability to educate, guide the community in facing life in the future.

In the National Education Standards, the explanation of Article 28 paragraph (3) item (d) is stated that what is meant by social competence is the ability of teachers as part of the community to communicate and interact effectively with students, fellow educators, education personnel, parents / guardians students, and the surrounding community. This is further explained in the RPP about Teachers, that social competence is the ability of teachers as part of the community, which at least has the competence to:

- 1) Communicate verbally, in writing and with gestures.
- 2) Use communication and information technology functionally.
- 3) Associate effectively with students, fellow educators, education personnel, parents / guardians of students, and
- 4) Hang out politely with the surrounding community.

### **Professional Competence**

According to the Dictionary of Education: *Profession is an occupation usually involving relatively long and specialized preparation on the level of higher education and governed by its own code of ethic, profession is one who has acquired a learned skill and conforms*

*to ethical standar of the profession in which he practice to skill* (Good, dalam Nurdin & Usman, 2002: 15).

Professional competencies as referred to in Permenag Number 16/2010 paragraph (1) include:

- 1) Mastery of material, structure, concepts, and mindset that supports religious education subjects;
- 2) Mastery of competency standards and basic competencies in religious education subjects;
- 3) Development of creative learning materials for religious education subjects;
- 4) Continuing professional development by taking reflective actions; and
- 5) Utilization of information and communication technology to communicate and develop themselves

## **METHODOLOGY**

This type of research is research and development. Sugiyono (2010: 297) says that research and development methods or research and development are research methods used to produce certain products, and test the effectiveness of these products. The products produced in this study are guidebooks for Professional Competency Candidates for Undergraduate Mathematics Education FITK UIN SU Medan. This research is located on campus II UIN Sumatera Utara Medan, located at Jl. Williem Iskandar Pasar V Medan Estate.

The population of this study was all students of the seventh semester (seven) majoring in Mathematics Education at the Faculty of Tarbiyah and Teacher Training at UIN North Sumatra Medan, totaling 207 students. Whereas the sample from this study is the seventh semester students (seven) majoring in PMM FITK UIN North Sumatra, amounting to 118 students. The amount is taken from the formula of Isaac and Michael (in Sugiyono, 2010: 87). By taking the level of error  $\alpha = 10\%$  based on the table determining the number of samples from the population with a level of error of 10%, if the population is 210 then the number of samples is 118.

The design of the development research used refers to the model developed by Thiagarajan (1974: 6-11), namely the 4 D model (Four D Model) which consists of 4 stages, called define, design, develop, and disseminate.

## FINDINGS AND DISCUSSION

### Validation of the Guidelines for the Guidelines for Professional Competencies for Prospective Mathematics Education FITK UIN North Sumatra Medan

The validator's assessment of the professional competency booklet for the Mathematics Education candidate at FITK UIN North Sumatra Medan included several aspects, namely the feasibility of content, language, and presentation. Recapitulation the results of the assessment are presented in the following table

**Table 1. Recapitulation of Validation Expert / Expert Results on Guidance Guidelines Guidelines for Professional Competencies Candidates for Mathematics Education FITK UIN North Sumatra Medan**

Component	Sub Component	Average per component	Category
Component of eligibility	Material coverage, material accuracy, maturity, stimulating curiosity, operational learning objectives	3,35	Valid
Component of Linguistically	In accordance with the development of students, communicative, dialogical and interactive, coherence and conformity of thought flow, conformity with the rules of the Indonesian language are correct, the use of symbols and symbols	3,50	Valid
Component of Presentation	Systematic presentation, presentation logic, conceptual harmony, balance between facts, suitability between chapters, picture illustrations with material	3,43	Valid
<b>Rata-Rata Total</b>			<b>3,43</b>

Based on the table above and the validity criteria set out in the previous chapter, the textbooks in mathematics learning by incorporating Islamic values that have been developed are included in the valid category of 3.43. Thus, the grid handbook is suitable for use by prospective Mathematics Education students with little revision and suggestions for improvement.

Field Trial results of the professional competency grid guide for prospective FITK UIN North Sumatra Medan Mathematics Education Medan based on input from the validator, then tested to students of the Mathematics Education Study Program FITK UIN SU, 7th semester of 2017/2018 teaching to get input -require to perfect the grid manual.

**Description and Analysis of Student Response Data**

Questionnaire for students' response to the professional competency booklet for prospective Mathematics Education FITK UIN North Sumatra Medan was provided with the aim of providing input on the improvement of the lattice manual. From the results of student answers written in the student response questionnaire in the following table:

**Table 2. Student Response Questionnaire Results**

Assessment Indicator	Statements	Percentage of student responses (%)	
		Agree	Disagree
A.Interested	1. The output of this grid handbook is interesting	80	20
	2. This grid handbook makes me more enthusiastic in learning mathematics	70	30
	3. This grid handbook supports me to master high school mathematics material	90	10
	4. With the illustration can provide motivation to learn high school mathematics material	85	15
B. Material	1. The material presented in this grid handbook is easy for me to understand	95	5
	2. Submission of material in this grid handbook is related to daily life	85	15
	3. Presentation of material in this grid handbook encouraged me to discuss with other friends	80	20
	4. This grid handbook contains evaluations that can test how far	95	5

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	I understand about high school mathematics material		
C. Language	1. The sentences and paragraphs used in this grid handbook are clear and easy to understand	95	5
	2. The language used in the grid handbook is simple and easy to understand	98	2
	3. The letters used are simple and easy to read	90	10
<b>Rata-Rata</b>		<b>87.55</b>	<b>12.45</b>

Based on the table above it can be seen that overall the percentage of students' positive responses is 87.55%, while the percentage of students' negative responses is 12.45%. Thus, the manual for the professional competency grid of prospective Mathematics Education FITK UIN North Sumatra Medan is said to meet the effective criteria.

By paying attention to the results of the validation by experts / experts and considering the positive response of students to the guideline libraries guideline book Mathematics Education Faculty of Science Tarbiyah and Teacher Training UIN North Sumatra Medan was declared feasible for use in the UIN North Sumatra Medan environment.

## CONCLUSION

Based on the results of the study, conclusions can be obtained as follows:

- a. The professional competency grid guide for prospective FITK UIN Mathematics Education in North Sumatra Medan has fulfilled the valid and practical criteria which can be seen from the average recapitulation of the results of the validation team's assessment obtained by 3.43 with good criteria. So that the lattice guidebook is suitable to be used in lecture programs.
- b. In general, the students' response to the FITK UIN North Sumatra Medan Mathematics Education Faculty FITK UPTI student professional competency guidebook book was very positive, which was 87.55%. Thus, the manual for the

professional competency grid of prospective Mathematics Education FITK UIN North Sumatra Medan is said to meet the effective criteria.

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