An analysis of teacher’s preparation in implementing 2013 revision curriculum on the mathematics learning as a specialization subject

T Susilo¹ and A Suryawan²
¹Department of Mathematics Education, Sebelas Maret University, Indonesia.
²Lecturer of Muhammadiyah Magelang University, Indonesia

Corresponding email: ¹trisusilo.math@student.uns.ac.id, ²ari.surya_88@ummgl.ac.id

Abstract - This study aimed to determine the pedagogical competence of teachers, the readiness of planning and implementation of learning related to the implementation 2013 revised edition curriculum on mathematics specialization learning for senior high schools Wonogiri. Informants in this study are 6 high school mathematics teachers X and XI class who teach in the school district Wonogiri. Data were collected using questionnaire method, interview, observation and documentation. Qualitative data analysis is done interactively through 4 paths: data collection, data reduction, data display, drawing conclusion. The results showed that high school mathematics teacher class X and XI in school district of Wonogiri City. The results show that most high school mathematics teachers in grade X and XI are ready to implement the 2013 revised edition curriculum and a few have not been able to implement due to internal or external factors. High school math teachers at Wonogiri district who are ready to face the 2013 revised edition curriculum have applied 10 teacher pedagogic competency indicators according to Regulation of the national education ministry Number 16 Year 2007 in learning. The readiness and implementation of mathematics learning is in line with the demands of the 2013 revised edition curriculum. Based on the teachers who are not ready, data on issues that arise in the implementation of the 2013 revised edition curriculum. Especially the problems in learning, namely mismatch of Core Competence (KI) and Basic Competence (KD) in teacher manual, material disregard in student handbook and lack of examples of problems that exist in teacher manual.

Key words : 2013 revision edition curriculum, teachers preparation, mathematics specialization learning

1. Introduction
Over time this has evolved the demand for a changing educational curriculum that prioritizes the need to build a nation's character and also guides students to be positive about everything for their own future good. This is based on the facts and perceptions of society about the decline in the quality of the attitude and morals of children or young people. What is required now is a curriculum of character education in the sense that the curriculum itself has a character, as well as oriented to the formation of the learner's character [1].
The curriculum reform is largely welcomed by teachers, undergraduate education and the general public. However, the reforms are not free from critics largely focused on implementing reforms. That research conducted so far shows that the lack of material support and training opportunities for teachers, resources and scarce materials, poor technology infrastructure and physical facilities are major obstacles before achieving the goals outlined in the reforms [2]. Critics also argue that the participation and involvement of civil society actors and universities in the preparation of curriculum programs and pilot cases has been quite limited [3].

The existing educational problems, Ministry of Education and Culture in Indonesia assess the need to develop a new curriculum, the Curriculum 2013 [4]. The result of PISA analysis in 2015 which has represented all teachers in Indonesia after the use of the 2013 curriculum demonstrates the high educational role of teachers' learning. (OECD, PISA Database 2015, Tables II.5.9, II.5.10 and II.5.11.)

Revisions to the 2013 Curriculum document have been conducted in 2016. From the revision of the 2013 curriculum, it is expected that teachers are easier to implement. The results of this revision will further facilitate the work of teachers, especially in the assessment of their students. "If previous teachers of mathematics should assess the spiritual attitudes and social attitudes of all students, now not. These tasks are done teachers of religion and character and teachers of Education Pancasila and Citizenship (PPKn) directly. But the teacher of mathematics remains obliged to develop children's character, Children are not deprived of the roots of our nation's culture (Head of Curriculum and Book Center (Puskurbuk) Tjipto Sumadi, 2016).

Especially in mathematics subjects that in fact mathematics teachers are expected to enter the world of students' imagination to invite students to love and enjoy learning mathematics, which mathematics subjects are often considered difficult by students. The math teacher should also be the ideal teacher. This means that teachers who have a variety of competencies and intelligence that clearly evident from the character and behavior of everyday, both when as educators, in the professional community, as well as members of the community.

Curriculum 2013 has been tested in some elementary and middle schools, where in fact it shows that the 2013 curriculum has obstacles in its implementation in various regions because most teachers are not ready, the teacher's unpreparedness is not only related to his competence, but related to his creativity problem, which is also caused by The formulation of a slowly socialized curriculum by the Government [5]. In line with that opinion, teacher preparation for the implementation of the 2013 Curriculum of the hasty and less up-to-date revision edition. It can be seen from the very short time of teacher training and close to implementation time. Teachers in duty in the region will find it difficult to follow new things in a short time, especially with an integrative thematic approach that takes time to understand them. The government is determined to prepare the master book for teachers and students' handbooks, but teachers should first comprehend comprehensively the learning materials, not just read the handbook. From the explanation is likely to also affect the subjects of mathematics, especially the mathematics of interest, because it is difficult to implement the mathematics of interest with thematic approach.

To know the determinants of the success of the Curriculum 2013, especially the readiness of teachers in implementing the curriculum of 2013 revised edition of math in education, it is necessary to carry out the analysis of teacher readiness in implementing the 2013 revised edition curriculum on learning mathematics in the city of Wonogiri.

2. Theoretical Framework
2.1. Pedagogic Competency of Teachers
In Law No. 14 of 2005 mentioned that the competence is a set of knowledge, skills, and behaviors that must be owned, lived, and mastered by teachers or lecturers in performing professional duties. Law number 14 Year 2005 on National Education Standards defines teacher competency covering pedagogic competence, personality competence, social competence, and professional competence gained from professional education.
Regulation of the national education ministry number 16 year 2007 about academic qualification standard and teacher potency, mention in detail pedagogic competence include:

a. Understanding the characteristics of learners from the physical, moral, spiritual, social, cultural, emotional, and intellectual aspects.

b. Mastering learning theories and learning principles that educate.

c. Develop a curriculum related to the subjects being taught.

d. Managing educational learning.

e. Utilizing information and communication technology to learn.

f. Facilitate the development of potential learners to actualize potentials.

g. Communicate effectively, empathy, and courteous with learners.

h. Conduct assessment and evaluation of learning outcomes.

i. Utilizing assessment and evaluation results for learning benefits.

j. Conduct a reflective action to improve the quality of learning.

2.2. 2013 Revised edition Curriculum

Teacher pedagogical skills are indispensable when implementing the revised 2013 Curriculum edition. In this curriculum the learning method becomes one of the things that concern in the improvement of K-13. Some teachers consider the method of learning with the 5M thinking process (observing, asking, gathering information or trying, associating, communicating) procedural and mechanistic so as to shackle the creative space. During this time they view the method as the only approach in learning in all subjects.

The provision of creative space in the teacher as a supporter of pedagogic ability includes several things. The Government prepared syllabus is one of the models to inspire. Teachers can develop according to the relevant context. In thematic lessons (especially elementary level), teachers can develop themes and sub themes according to the relevant context. 5M is the ability of thought processes that need to be trained continuously through learning so that students are accustomed to thinking scientifically. 5M is not a procedure or steps or approach to learning.

2.3. Learning Planning in 2013 Revised edition Curriculum

The lesson plan is a necessary tool for providing direction on field work, and is often used as a basis for assessing learning. The lesson plans connect learning, practice, evidence, and time into a coherent plan [7]. Learning planning can also be interpreted as the process of preparing the lesson material, the use of instructional media, the use of approach, the use of approach or method of pursuit, in a time allocation that will be implemented in one semester to come to achieve the specified goal.

2.4. Implementation 2013 Revision Edition Curriculum

The improvement of K-13 is done by evaluative formative, one of them is by improving the point of competence and Basic Competence, syllabus and textbooks. The improvements were made based on inputs provided by the community such as teachers, education activists, practitioners, educational observers, and the general public.

Based on the results of the evaluation, it was found that a less precise understanding by the community caused by the presentation format and nomenclature in K-13, among them KD on KI which is considered less logical is associated with the characteristics of the maple. It also found an indication of inconsistency between KD with syllabus and textbook. One of the principles of syllabus improvement to make it easier for teachers to understand it so it is easy to implement.

Improvements to the syllabus include, among others, writing and formatting so that teachers can easily understand, efficient presentation (from more than 100 pages to an average of 20 pages per maple), without reducing the substance and consistently observing the scope and order of their knowledge, As well as providing clearer explanation of the characteristics of the maple, the scope of competence and learning materials.
3. Methods

3.1. Types of Research
This study uses a qualitative descriptive approach, with case studies, it is research focused on a single phenomenon chosen and wanted to be understood in depth, regardless of other phenomena. Qualitative descriptive research is a study aimed at expressing empirical facts objectively based on scientific logic, procedure and supported by strong methodology and theoretical according to the discipline of study [8].

3.2. Participants
In this research, the subject of research is the mathematics teacher in the interest of class X and XI in Wonogiri District Senior High School, while the object of the research is the readiness of the teacher in implementing the revised edition 2013 curriculum on mathematics specialization learning.

3.3. Source of Research Data
In this study the main data in the form of information about the problematic the Teacher’s Preparation In Implementing 2013 Revision Edition Curriculum on the Mathematics Specialization Learning. Information on the misuse of the the Teacher’s Preparation In Implementing 2013 Revision Edition Curriculum through documentation of supporting documents and math teacher interviews. Information about the problem of the Teacher’s Preparation In Implementing 2013 Revision Edition Curriculum obtained through the observation of the implementation of learning activities on mathematics teachers.

3.4. Data Validity
Validation of data on problematic teacher’s preparation in implementing 2013 revision edition curriculum on mathematics specialization learning using triangulation theory, that is the researcher use various theories, hence the researcher will get a complete and depth interpretation. These theories can succeed from the same discipline, as well as from different disciplines. Further triangulation techniques, namely testing the credibility of data by checking the data to the same source with different techniques. For examples data obtained by interview, then checked with observation, documentation, or questionnaire. Finally, the triangulation of methods, ie by using the same data source to search for specific data but using different data collection techniques.

3.5. Data Collection Technique
Data collection techniques in this study are interviews, observation, and documentation. Interviews in this study were conducted with unstructured interviews with the aim of obtaining more in-depth information about the problematic of teacher’s preparation in implementing 2013 revision edition curriculum on mathematics specialization learning.

3.6. Data Analysis Technique
Data analysis is an activity undertaken by researchers in order to arrange the systematic data obtained from the observation. The arrangement is done by organizing data into categories, describing into units, synthesizing, composing into patterns, choosing what is important and what will be learned, and making conclusions so easily understood by yourself and others. This research includes three stages of qualitative data analysis that is data reduction, data presentation, and conclusion. In reducing the data of field records in transcripts the researchers complete the reduction by categorizing the data in preparing the learning scenario. The presentation of data classifies data based on steps in the process of composing the learning scenario. A conclusion based on the presentation of data on the preparation of learning scenario.
Table 1. Data Analysis from Six Teachers

| No | Statements                                      | Very Often | Often | Sometimes | Never | Category       |
|----|------------------------------------------------|------------|-------|-----------|-------|----------------|
| 1  | Understand the student character               | -          | 6     | -         | -     | Good           |
| 2  | Teach according to basic competence            | -          | 6     | -         | -     | Good           |
| 3  | Creative in learning                           | 2          | 4     | -         | -     | Very Good      |
| 4  | Giving material systematically                  | -          | 6     | -         | -     | Good           |
| 5  | Develop a lesson plan                          | -          | 3     | 3         | -     | Enough         |
| 6  | Utilizing information technology and            | -          | 2     | 4         | -     | Enough         |
|    | communication in learning mathematics          |            |       |           |       |                |
| 7  | Develop student potential                      | 4          | 2     | -         | -     | Very Good      |
| 8  | Communicate effectively, empathically, and      | 6          | -     | -         |       | Very Good      |
|    | courteous with student                         |            |       |           |       |                |
| 9  | Determine the assessment procedure and evaluation | 5          | 1     | -         | -     | Very Good      |
| 10 | Make a use of the assessment results and evaluation for learning purpose | 1          | 5     | -         | -     | Very Good      |

3.7. Research Procedure
Preparatory stage, at this stage of the instrument preparation activities. Implementation and analysis phase, documentation of supporting documents, conducting interview problematic teacher’s preparation in implementing 2013 revision edition curriculum on mathematics specialization learning, then doing analysis of learning process planning data, observation of learning implementation in class, doing data analysis result of observation of process implementation Learning and ending interview about the implementation of learning. The conclusion withdrawal stage, at this stage the activities draw conclusions from the research.

4. Results
The results of this research is to know how the teacher’s preparation in implementing 2013 revision edition curriculum on mathematics specialization learning, supporting factors and obstacles, and obstacles in implementing the 2013 revision edition curriculum in senior high school of class X and XI and how to overcome them.

The number of teachers who became respondents in this study were 3 teachers who teaches in grades X and XI, with the status of permanent teachers with education level Strata S1. The data obtained in this study comes from interviews with teachers based on the questions that have been prepared that include implementation, the supporting and inhibiting factors, and the constraints faced with in Implementation of the 2013 curriculum on mathematics subjects.
| No. | Statement List                                                                 | Information                                                                                                                                 |
|-----|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Every teacher tries to understand individual differences of learners, especially differences in ability and attitude | Understanding of differences Individual students, especially differences in ability and attitude From three teachers began to develop          |
| 2   | Each teacher teaches attention to Competence related to student attitudes     | Teachers attention to competencies associated with students' attitudes of Teachers began to develop                                      |
| 3   | Teachers apply various approaches, strategies, methods and learning techniques teach creatively in learning mathematics | Application of a scientific approach to moment learning strategy, methods and learning techniques educate creatively with in learning mathematics from all three teachers began to develop. |
| 4   | Teachers organize learning materials according to the correct approach chosen and characteristics of learners | Structuring learning materials on a exactly according to that approach Selected and characteristics of learners of the three teachers began to develop. |
| 5   | The teacher develops components learning design                               | Development of components the learning component the teacher starts to look                                                                |
| 6   | Teachers utilize information technology and communication in learning mathematics | Utilization of information technology and communication in learning the math of the three new teachers Start to look. This is because in adequate facilities, such as LCD and projector. |
| 7   | Teachers facilitate the development of Students potential to actualize their potentials | Facilities giving in the development of potential learners to actualize various potentials owned from the three teachers began to develop          |
| 8   | Teachers communicate effectively, empathically, and courteous with learners     | Communication between teachers and students begin to culture and consistent. This is done at the time of learning, many students does not feel awkward in. |
| 9   | The teacher determines the assessment procedure and evaluation of the learning process and outcomes | Determination the process and learning outcomes of three teachers have begun to cultivate and consistent.                                  |
| 10  | The teacher utilizes the results of the assessment and evaluation for learning purposes | Utilization of assessment results and evaluation for the benefit of Teachers from three teachers started developing.                           |

The result of the questionnaire and observation above is also clarified by interviewing the teacher of class X and XI on 2013 revised edition curriculum on learning mathematics in the city of Wonogiri. The following is the result of interview about pedagogic competence related to the implementation of 2013 revised edition curriculum which applied by teacher of math class X and XI senior high school of class X and XI in Wonogiri regency.
By the interviewing:

Mr. Yustinus Murdoko, MM, M.Pd ask “according to the definition of the 2013 revised edition curriculum in learning, teachers are expected to use a scientific or scientific approach. Scientific approach that starts from the emergence, understand, ask, try and conclude.

Mr. Krisdiyasmo, S.Pd, M.Pd ask “The 2013 curriculum is a student-based curriculum”. Students should try to understand themselves with teacher guidance. This means that the 2013 curriculum motivates students to, first the students have to search first by looking at the environment, see the teaching materials, then try what is observed, after that critical thinking, and then draw a result / communicate what was tried and seen earlier”.

Mrs. Neny Diyatuti, S.Pd ask “This is an important curriculum for building knowledge, with this revised edition curriculum the teacher becomes easier to teach without bribing many judgments”.

From the questionnaire it shows the teacher of class X and XI is ready in the planning of learning related to the implementation of Curriculum 2013 revision edition. This is held by teachers using the syllabus that has been provided by the government, teachers understand the whole thing related to integrative thematic syllabus before done. Learning, teachers understand beginner teachers and teachers, teachers and teachers who will be taught, teachers and understand the theories that will be taught, and teachers understand the utilization of facilities and learning resources that have been provided.

5. Discussion

5.1 Pedagogic Competency

Generally the teacher of math class X and XI has implemented the pedagogic competence. The pedagogic competencies that teachers have undertaken include: (a) every teacher seek to understand the difference of learners, disorders and attitudes, (b) subject teachers related to students' attitudes, (c) teachers apply various approaches, strategies, methods and learning techniques Mathematics learning, (d) teachers organize learning materials very well with the chosen approach and characteristics of learners, (e) teacher learning potential learners to actualize their potentials, (f) teachers communicate effectively, empathetically and courteously With participants (f) the teacher determines how to evaluate and evaluate the learning outcomes, and (h) the teacher utilizes the results of the assessment and evaluation for the learning purposes, (i) the teacher development of the learning components and (j) the utilization of information and communication technology in the lesson.

The first pedagogic competence that teachers must master is to understand the characteristics of learners. Teachers must understand the principles of personality development and learners' differences in order to actualize the potential of the students. This is supported by research conducted by Sanaky H.A.H (2005) entitled "Certification and Teacher Professionalism in the Era of Educational Reform" which definitely has an understanding of the nature, characteristics of students and its development, understanding some useful educational concepts to help students, teachers Some [9].

5.2 Teacher Readiness in Learning Planning

Teacher as the respondent has compiled a complete learning plan, with attitude, skill, and attitude. That is certainly in accordance with the demands in the Curriculum 2013.

5.3 Readiness Teachers in Learning Implementation

In the process of learning in the classroom running in accordance with the stage of learning activities of the initial activities, core activities and end activities.

6. Conclusion

Based on the results of research analysis and discussion obtained can be concluded the readiness of teachers in implementing Curriculum 2013 revision edition on mathematics specialization learning in senior high school in Wonogiri regency.
a. Pedagogic competence of mathematics teacher in senior high school in Wonogiri regency is in accordance with the demands of Curriculum 2013 revision edition on mathematics specialization learning. Mathematics teachers who teach in senior high school in Wonogiri regency have applied 10 indicators of pedagogical competence according to Regulation of the national education ministry Number 16 of 2007. Pedagogic competencies that have been implemented by teachers include: a) each teaching teacher seeks to understand individual differences of learners, especially differences in abilities and attitudes; (b) teachers pay attention to competencies related to students' attitudes; (c) teachers apply creative approaches, strategies, methods and techniques in (e) teachers facilitate the development of learners' potential to actualize their potentials, (f) teachers communicate effectively, empathically and politely With learners, (g) the teacher determines the pen procedure Assessment and evaluation of learning process and outcomes, and (h) teachers utilizing assessment and evaluation results for learning purposes,(i) Teachers develop components of learning and (j) utilization of information and communication technology in learning.

b. Mathematics teachers at senior high school in Wonogiri regency indicate their readiness in learning planning related to the implementation of Curriculum 2013 revised edition.

c. Mathematics teachers at senior high school in Wonogiri regency indicate their readiness in the implementation of learning related to the implementation of Curriculum 2013

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