Teachers’ Beliefs and Implementation in Mathematics Learning

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ABSTRACT

The objectives of the research are (1) to identify teachers’ beliefs in teaching, (2) to identify the factors that influence their belief and practice in teaching, and (3) to identify the implementation of teachers’ beliefs in teaching. The subjects of the research are two mathematics teachers. The data are collected through observation, interview, and document analysis. Interactive models from Miles and Huberman were used to examine the data. The findings of this research are: (1) there are some similarities and differences between teachers’ beliefs in teaching of accountancy and tourism teachers. The similarities and differences are in education and teaching and in curricula. Meanwhile, in teaching profession, the teachers have same beliefs, (2) there are seven factors which affect teachers’ beliefs and practice in teaching that consist of teaching experience, learning experience, classroom management, student’s family, students’ colleagues, motivation, and teaching media, and (3) dealing with teaching practice, accountancy teacher does continuous teaching in which one genre is taught continuously to the next meeting, while tourism teacher does one finished teaching in which one genre is taught in one meeting. In their teaching practice, there are some beliefs about education and teaching and about curricula are not implemented, while beliefs about teaching profession are implemented. The inconsistency between teachers’ beliefs and teaching practices is caused by affecting factors revealed by the teachers. Therefore, it is important for teachers to reduce the factors that impede the smoothness of teachers’ beliefs in teaching practice or even change their teaching belief if it cannot facilitate students to learn.

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INTRODUCTION
The presence of secondary vocational schools as a secondary scorer in Indonesian experts experienced rapid development. The development has been through several changes for the sake of improvement. This is obviously seen from the government’s efforts, starting from the procurement and improvement of facilities, graduates’ as well as teachers’ quality, and the revision of curriculum. Due to this change, teacher education institutions, as the institutions that train teachers, need to develop their responses to address the challenge in the implementation of mathematics programs in schools.

Teaching does not only mean as transferring process of information from teacher to students, because when teaching (Cuban, 2009) the teacher will also transfer skills, and values to students, but to make it successful also requires a good interaction between the participants. Interaction here is not only when the teaching and learning process happens like a good answer for a question or a good act for an instruction, but it must be beyond it and might cross the instructor - learner relation. As similar as parents, (Ozel, 2007) teacher is the person who influences the students, if teacher gives them comfort, and trust, then students may consciously obey the entire teacher’s direction and the teaching will run well.

METHODS
This research adopted a qualitative case study approach to investigate the relationship between teachers’ beliefs and actual classroom practices in teaching.

The main aims of this research are to investigate teachers’ beliefs of two mathematics teachers that teach in accountancy and tourism classes and their practices in teaching. Considering that case study research cannot be separated from the context of the case being investigated, this study also investigated the factors that influence teachers’ belief and practice in teaching.

The subjects of this study were the teachers of the eleventh grade class of accountancy and tourism in State Vocational High School Salatiga. Theoretical sample of non-probability sampling is used in determining the sample of the research. By considering the purpose of this research, the subjects of this research are the teachers that handle more than one class both mathematics teachers in accountancy class and tourism class. It has purpose that the teachers that teach more than one class have deeper beliefs about teaching.

In this research, the researcher collected the data by giving questionnaire to the teachers, observing teachers’ practice in teaching, interviewing the teachers and the students, and documenting teaching learning activities and teaching source.

RESULTS AND DISCUSSION
From the data that is obtained, teachers’ beliefs in teaching that are investigated in this research include the teachers’ conception about (1) education and teaching, (2) curriculum, and (3) teaching profession. The findings of this section are based on the data taken from interview.

The findings show that there are some similarities and differences between the results of teachers’ beliefs in teaching of accountancy and tourism teachers. From three main indicators of teacher’s beliefs in teaching, there are similarities and differences
in education and teaching and in curriculum. Meanwhile in teaching profession, the teachers have same beliefs.

Moreover, there are seven factors which influence teachers’ belief and practices in teaching that consist of teaching experience, learning experience, classroom management, student’s family, students’ colleagues, motivation, and teaching media.

The next is about the result of teachers’ practice in teaching that is obtained from the observation of their teaching practices. Teachers’ documents are also used to support the data about what teacher plans in her teaching, students’ work, and material selection. In line with the observation, there is difference of teacher’s teaching practice in teaching. Accountancy teacher tends to continue her teaching in next meeting. In other side, tourism teacher tends to finish one text in one meeting. From their teaching practices, some teachers’ beliefs in teaching that are not implemented are beliefs about education and teaching and about curricula. In other side, beliefs about teaching profession are implemented.

From the result, teachers’ beliefs about education and teaching are in line with curriculum demand and theoretical insight. Both teachers believe that teacher should master the material, know students’ characteristics, create communicative and interesting teaching, and have responsibility in enlightening students’ knowledge. Their beliefs are in line with scientific approach. Mulyasa (2007: 162) reveals that teacher should be built as facilitator and learning partner to students. Teachers’ job is not only to convey the information to students, but also to be trained as facilitator that can facilitate the easiness for students in learning, so the students can learn in high motivated nuance and comfortable situation.

Dealing with teachers’ beliefs about curriculum, the teachers have same mindset that curriculum is basic standard to do teaching learning that covers all program, syllabus is roadmap that contains material description to be taught, and lesson plan is guide or basis for practicing what should be taught. In line with their beliefs about it, Chodidjah (2012: 37) explains that curriculum is the road map of education activities which has to contain objectives that teachers should achieve at a certain period of time. Curriculum determines the instructional materials to use, the teaching techniques to apply as well as assessment for the learning. It shows that teachers’ beliefs about curriculum, syllabus, and lesson plan are in line with theoretical insight.

In material selection, both teachers believe that familiar topics in daily life ease students to learn and create imagination. The teachers also use main book and supplementary books in teaching, although they use different main and supplementary books. They use many books to complete the weaknesses of each book.

In teaching practice, accountancy teacher does not use the book as the media, while tourism teacher builds students’ understanding by using LKS. It indicates that students’ characteristics in accountancy and tourism class are different. Thus, the teachers also apply different ways in building students’ knowledge. It is strengthened by teachers’ statement in interview. The teacher says that the characteristic of the students is different. Accountancy teacher reveals that her students have good ability in understanding what teacher explains. She reveals that it is different in handling accountancy and tourism students. In addition, tourism teacher also states that tourism students have less ability than accountancy students.

Related to teaching profession, both teachers agree that teacher should have good competence and skill, master the material, have good education, and be able to lead the
students to learn. The teachers also have the same view that teacher has intellectual and moral responsibility. They detail moral responsibility in the way of dressing and speaking, building students’ motivation and characteristic, while intellectual responsibility applies in transferring knowledge and giving motivation to the students to learn. Related to the theory above, it shows that teacher is role model for students in building students’ moral. Thus, what teachers believe that they have moral responsibility is also in line with this theory.

Moreover, there were seven factors which affected teachers’ belief in teaching gathered from interviews that consist of teaching experience, learning experience, classroom management, student’s family, students’ colleagues, motivation, and teaching media. These factors are in line with the factors that have been revealed by Borg. Borg (2003: 94) comments that factors such as parents, principals’ requirements, the school, society, curriculum mandates, classroom and school lay out, school policies, colleagues, standardized tests and the availability of resources may hinder mathematics teachers’ ability to carry out instructional practices reflecting their beliefs. From the factors that are revealed by Borg, the results of influenced factors that are found in this research are in line to Borg’s are students’ family, colleagues, and classroom management.

Moreover, the rest of influenced factors in this research such as teaching experience, learning experience, students, class time, teaching test and teaching subject are in line with factors that are revealed by other researchers. Borg and Phipps (2009: 381) conclude that the dichotomy of beliefs and practices may stem from teachers’ professional course work and prior experiences inside and outside school with teaching, learning experiences, students, or their activities. In addition, Melketo (2012) in his research says that beliefs are influenced mainly by contextual factors such as class time, students’ expectations, teaching the test rather than teaching the subject and focusing on classroom management concerns.

Dealing with teaching approach, accountancy teacher says that she uses contextual teaching approach in her teaching. Meanwhile, tourism teacher says that she uses communicative approach. Their beliefs about teaching approach are not implemented in teaching practice. The teachers tend to use genre based approach rather than the approach they hold. It cannot be denied that text based syllabus directs them to teach following generic structure of genre being taught.

From teachers’ beliefs that cannot be applied well in teaching practice, it can be concluded that there is inconsistency between teachers’ beliefs and their teaching practices in teaching. It is in line with what has been reviewed by Phipps and Borg (2009: 381) in their work. One of their conclusions is teacher’ beliefs about teaching and learning are at the same time, not always reflected in what teachers do in the classroom. It means that belief does not always guide what teachers do in their teaching practice. Moreover, Phipps and Borg (2009: 381) also propose that approach to studying the relationship of beliefs and practices reflect some assertions. One of them is contextual factors, such as a prescribed curriculum, time constraints, and high-stakes examinations, mediate the extent to which teachers can act in accordance with their beliefs. It indicates that curriculum is potential to affect teachers’ beliefs.
CONCLUSION

From the result of the research it can be concluded, there are some similarities and differences between the results of teachers’ beliefs in teaching of accountancy and tourism teachers. There are similarities and differences in education and teaching and in curricula, while in teaching profession, the teachers have same beliefs. There are seven factors which affect teachers’ beliefs and practices in teaching that consist of teaching experience, learning experience, classroom management, student’s family, students’ colleagues, motivation, and teaching media. The difference affecting factors that are revealed by accountancy and tourism teacher are in student’s family, students’ colleagues, motivation, and teaching media. Accountancy teacher reveals student’s family and students’ colleagues as other affecting factors, while tourism teacher reveals motivation and teaching media as other affecting factors.

To make teachers’ beliefs applied well, the teacher can minimize the affecting factor so their beliefs can be implemented well in their teaching practice. It might also be possible for the teacher to change their beliefs if it impedes the smoothness of teaching learning process.

Additionally, it is better for further researcher to examine many areas that can be explored and investigated in term of mathematics teaching in local context, such as teachers’ beliefs about feedback. Study about teachers’ beliefs and practices also can be examined in different skills in form of qualitative research with same subjects (accountancy and tourism teacher) or different one. A further research might also be designed qualitatively in different level of school grade.

REFERENCES


