

Lesson Study on The Development of Local Potential-Based Learning Material to Improve Professional Competence of Elementary School Teachers

Rokhmaniyah¹, Joharman² and Ngatman³

^{1,2,3}Primary Teacher Education, Faculty of Teacher Training and Education,
Universitas Sebelas Maret,
Surakarta, Indonesia



Abstract — This article describes the results of research of lesson study on the development of local potential-based learning material to improve the professional competence of elementary school teachers in Alian, Mirit and Kebumen Sub-District. This research uses Research and Development approach and quasi-experimental methods. The subjects of this research are elementary school teachers in Alian, Mirit and Kebumen sub-districts amounting to 18 people. Data collection is carried out through (1) Focus Group Discussion (FGD), (2) observation, (3) test and (4) interview. The result of the research can be concluded that: (1) Lesson study on the development of local potential-based learning materials can improve the professional competence of elementary school teachers. The implementation is through learning plan and preparation of learning tools by focus group discussion/FGDs I and II. The implementation (Do) is carried out by open classes I and II and the reflection (see) is to evaluate learning in order to be done better by FGD. (2) Lesson study can produce learning materials based on quality local potential. The conclusion of test result shows that there is a significant influence between teachers who have already written learning materials and teachers who have never written learning materials.

Keywords — *Professional Competence; Lesson Study; Learning Materials; Local Potential*

I. INTRODUCTION

Teachers in Indonesia ideally always perform professionally with their main duties to educate, teach, guide, train, direct, assess and evaluate (Law on Teachers and Lecturers of the Republic of Indonesia Number 14 of 2005). In the Law Number 20 of 2003 Article 39 Paragraph 2 states that educators are professional workers in charge of planning and implementing the learning process, assessing learning outcomes, conducting mentoring and training and conducting research and community service, especially for educators in universities.

The teacher professional standard is already outlined in the Regulation of National Education Number 16 of 2007 concerning Teacher Qualification and Competency Standard. The Teacher Qualification Standard is a Bachelor Degree (S1) in accordance with the educational background. Meanwhile, the teacher competence standard is the dimension of pedagogy, personality, social and professional

competences. A professional teacher must master the four competencies. As a reward for professional teachers, the government has provided the professional teacher's allowance amounting to 100% of basic salary. Certified teachers should be able to demonstrate maximum mastery of teacher competence as set out in the Ministerial Regulation of National Education Number 16 of 2007.

The term professionalism derived from the profession. In Indonesian English Dictionary, 'profession' means work (John M. Echols and Hassan Shadily, 1996: 449). Arifin in the book *Kapita Selekta Pendidikan* argues that profession implies the same meaning of occupation that requires expertise gained through special education or training (Arifin 1995: 105). A professional will continuously improve the quality of his/her work consciously, through education and training (H.A. Tilaar, 2002: 86).

In fact, in the field, there are still many teachers who

have not fully mastered the teacher's competence to the maximum, especially the fourth competence, namely professional competence. In the Government Regulation No. 19 of 2005, Article 28, paragraph 3 states that professional competence is the ability of mastery of learning materials widely and deeply that enables it to guide learners to meet the competence standards set out in the National Education Standard. Meanwhile, in the Ministerial Regulation of National Education Number 16 of 2007 states that one of the professional competencies is to develop learning material taught creatively.

Based on the results of interviews of the researcher to 22 teachers who participated in the selection to become excellent teachers in the Kebumen District on April 1, 2015 show the low ability of teachers, especially elementary school teachers to write scientific papers, innovative works and conduct research. Only a few teachers show their innovative work in the form of modules or learning media. In general, they find it difficult to put ideas in writing. Therefore, learning is still dominated by the source of package books. The source of learning from the package books has made learners bored. This is because the material in the book is not contextual with regard to local wisdom. Therefore, learners become more familiar with the local potential of other regions compared to the potential of their own region.

The boring learning conditions affect the learning outcomes. Therefore, when viewed from the average results of the school examination of 3 subjects (Indonesian Language, Mathematics and Science) at Elementary Schools in Kebumen District in 2014 only amounted to 7.23. The highest score was 29.05 and the lowest value was 6.55 (Data of Department of Education, Youth and Sports of Kebumen in 2014).

The results of analysis of the above problems are caused, among others, by the culture of writing, innovating and researching have not been intensively implanted in the work environment of teachers. Principals and supervisors in providing mentoring and guidance are still in the aspects of administration and discipline. Technical guidance to improve the professionalism of teachers conducted by the government has not reached all Indonesian teachers. In addition, the teacher's room for scientific publications is very limited. In addition to the causes coming from external factors (Government, principals, supervisors, professional organizations of teachers), it is also from the teacher factor itself. The awareness of the teacher to follow the technical guidance to make scientific papers and innovative work

done by professional associations and organizations is very low.

The method deemed most effective to improve the professional competence of teachers on an ongoing basis is through lesson study. Known as *jugyo kenkyu* (Lewis & Tsuchida, 1997), LS originated in Japan in the 1870s after being introduced to the country by Western educators. After years of implementation, several curriculum and teaching theories (Isoda, 2015) have emerged through LS in Japan, and the methodology is considered to represent "the culmination of innovations and improvements" (Shimizu & Chino, 2015, p. 123). LS comprises of three main steps: 1) *Plan*, involving teachers preparing and studying lessons; 2) *Do*, involving the teaching and observations of lessons; and 3) *See*, involving postopen class discussion and reflection among teachers and sometimes others (Isoda, 2015). Lewis (2002) describes the process as a collaborative step with teachers to plan, observe and reflect on lessons. Operationally, the lesson study is conducted through 6 stages: (1) forming LS group, (2) focusing LS, (3) planning Research Lesson (RL), (4) learning and observing RL, (5) discussing and analyzing RL and (6) Reflecting and re-planning LS (Santayasa, 2009). Related to group learning, many researchers see the environment and social structures as key to the cognitive activities associated with collaboration (Dillenbourg, 1999).

Furthermore, it is said that a prominent finding of existing research into teacher learning is that professional communities are effective 'agents' for enhancing professional learning and sustained professional development (Stoll, Bolam, McMahon, Wallace, & Thomas, 2006; Webster-Wright, 2009). Schools with strong teacher communities seem to have higher student achievement (Bryk, Sebring, Allensworth, Luppescu, & Easton, 2010; Horn & Kane, 2015).

The local potential is anything that is characteristic of regionalism and can provide benefits to the lives of the people in the region. Dedidwitagama (Akhmad Sudrajat, 2008) states that local excellence is the result of the earth, art creations, traditions, culture, services, natural resources, human or other resources that become the advantages of a region.

Based on the above background can be formulated problems: (1) how is the **lesson study** on the development of local potential-based learning material to improve the professional competence of elementary school teachers in Alian, Mirit and Kebumen Sub- District?; (2) can on the

development of local potential-based learning material to improve the professional competence of elementary school teachers in Alian, Mirit and Kebumen Sub-District produce quality learning materials?

This study aims, among others, at: (1) implementing the lesson study on the development of local potential-based learning material to improve the professional competence of elementary school teachers in Alian, Mirit and Kebumen Sub-District; (2) producing potential locally-based learning materials through the lesson study as an effort to improve the professional competence of elementary school teachers in Alian, Mirit and Kebumen Sub-District.

II. RESEARCH METHOD

The research as a, j) Dissemination. To find out the improved professional competence, a quasi-experimental method is used. The design of the quasi-experimental research in this study uses only one group. Thus, it does not require a control group (Sukardi, whole uses a Research and Development (R & D) approach. Borg and Gall (1983: 772) define developmental research as a process used to develop and validate educational products.

As for the research, development steps (R & D) according to Borg and Hall (1989: 775) are a) Research and Data Collection, b) Planning, c) Initial Product Development, d) Product trial /Limited Trial, e) Initial Product Improvement, f) Larger Field Trial, g) Product Completion of Wider Field Test Results, h) Final Product Trial, i) Final Product Revision or Improvement (2003). Researchers, especially those interested in investigating applied research questions, should move beyond the traditional experimental designs and avail themselves of the possibilities inherent in quasi-experimental designs (Shadish, Cook, & Cambell, 2002). The subjects of this research are elementary school teachers of classes I, II and III in Alian, Mirit and Kebumen Sub-Districts totaling 18 people. The selection of research subjects is based on the characteristics of the school, namely by taking into account the status of school accreditation and teacher status.

Data collection is through (1) Focus Group Discussion (FGD), (2) observation, (3) test and (4) interview. The data collection tools used in this research is (1) field notes, (2) interview questions (3) observation sheets and (4) test questions. In this case, the researcher is the key instrument that has ability to select, assess and decide the data. The determination of the data validity in this study is done by triangulation of sources and methods.

III. RESULT AND DISCUSSION

Based on the results of the questionnaire survey, it is stated that teachers are not familiar with the term lesson study, but they have not understood deeply and especially the elementary school teachers in Alian, Mirit and Kebumen Sub-Districts have never implemented the lesson study. Therefore, the teachers are very responsive to the lesson study activities of 43.3%. The teachers who state that the lesson study can improve their career competence, creativity and career development are 99%. Local potential can be developed through school learning. This is also supported by the teacher's statement of 78%. In addition, 83% of the teachers state that local potential can be a learning medium. Not all teachers make learning new materials in each semester. Usually, the learning is the same as the previous year and uses only package books. Learners experience boredom.

A. The Implementation of Lesson Study Based on Local Potential to Improve Professional Competence of Elementary School Teachers in Alian, Mirit and Kebumen Sub-District.

1. The Implementation of Lesson Study I

1.1 Planning Stage

The lesson study activity in this research started with a workshop. Prior to the workshop, participants filled out a pretest research questionnaire. Workshop participants were particularly interested in the explanation on material by spoke-persons, especially when discussing the writing of local potential-based learning materials.

At this planning stage, participants were grouped into a group of 4 or 5 each. After the participants were grouped, they performed FGD 1 with the task of analyzing the syllabus and the local potential of Alian, Mirit and Kebumen Sub-District, and then writing it on a striped folio paper. Subsequently, participants in the group began writing a draft of local potential based learning materials according to the task. Participants seemed enthusiastic in writing and asking questions. The learning materials to be made must meet the following elements: Identity of learning materials, Learning Activities to be undertaken, Developed Capability, Indicator Mapping, Material, Student Worksheet, Summary, Formative Tests/Evaluation Sheets, Key Answers and implementation guidance.

In FGD I, the researcher observed the writing of the draft of the local potential-based learning materials developed.

Writing the draft of the first stage learning materials was continued beyond the lesson study hours. Furthermore, the group corrected the draft of the local potential-based learning materials. Then, the researcher guides to determine 1st open class schedule and analyzes the required facilities needed for all the lesson study groups in the open class. The groups assigned model, teachers who would appear to manage the learning to test the legibility of the draft of local potential-based learning materials already written.

2.1 Do Stage

The open class was implemented for 5 days. Master models were prepared to manage the learning. The open class is attended by officials, lecturers and friends of one group of the lesson study as observers. The observers observed classroom management for testing the eligibility of the local potential-based learning materials from the back of the classroom.

Based on the results of observation indicate that learners are expected to look happy and glad by observing the local potential of the Kebumen District through pictures and video. From the local potential-based learning materials presented to the learners, it is expected that the learners do not have difficulty reading and working the Student Worksheet (LKS).

3.1 See Stage

The implementation of the Lesson Study stage I is not maximum because the learning materials have not developed the potential in each region as a whole.

2. The Implementation of Lesson Study II

2. 1 Planning Stage

The Lesson Study II started with 2nd FGD activity on . The research team presented the results of reflection of the lesson study I. There are constraints on the implementation of the Lesson Study I. Thus, the researcher made a plan and implemented the improvement action of Lesson Study II. Model teachers and groups prepared RPP, LCD, local potential drawings and worksheets to be shared to the learners.

2. 2 Do Stage

Stage Do was filled with 2nd open class activity. 2nd open class intends to test the eligibility of the local potential-based learning materials already improved in the planning stage of the lesson study II. The learning focused on students, and teachers were more dominant as a

facilitator. Researchers, lecturers, classroom teachers, school principals and officials of Bappeda (Regional Development Planning Agency) were as the observer team. The following is the first and the second monitoring results of the draft of the study materials.

2. 3 See Stage

In the Lesson Study II is found some advantages of the application of the lesson study, including: (1) students further develop their inquiry skill, (2) student learning activity increases, thus they prefer learning, (3) students have more opportunities to find wider information, (4) through the presentation of the research results, students further develop their communication skills and increase self-confidence, (5) providing opportunities for students to apply knowledge they have in the real world.

Field test results have shown improvement in the writing of local potential-based learning materials. This is shown from the assessment results of the learning materials. In the systematic element, the average result is 77, the average language element 78, the average material element 78 and the average writing technique element 80. The overall average is 78.

B. Lesson study to Produce Learning Materials Based on Quality Local Potential

Based on the observation, it can be concluded that all participants have tried to dig in exploiting the local potential around their respective school even though the level of the utilization is still very limited and varies between one school and another.

The results of monitoring the drafting of the local potential-based learning materials on the elements: the identity of learning materials, learning activities, developed capability, and indicator mapping, in general, have been done precisely in accordance with the provisions. However, some participants have not written it.

The results of monitoring and evaluation of each participant produce a draft of learning materials. Based on interviews with the participants, the lesson study adds knowledge insight to prepare the learning materials, the teacher is assisted with the alternative of learning materials based on local potential and motivated to be better in teaching. Quality can be measured by the number of teachers/participants of the lesson study of 18 people, who can prepare the learning materials in accordance with the criteria of writing materials based on the local potential of **18 people. However, of the 18 teachers, those who can**

write learning materials by getting scores above 80 are 4 teachers. Thus, it can be said that 22.2% teachers have been able to produce qualified local potential-based modules in accordance with the criteria. Meanwhile, the teachers who can write learning materials, but not reach the score of 80 are 77.8%. Notice the following Table 1.

TABLE 1. THE AVERAGE LEARNING OUTCOME BASED ON LOCAL POTENTIAL

Number of Participants	Average Score	Remark
1	78	T
2	81	S
3	80	S
4	79	T
5	77	T
6	78	T
7	76	T
8	78	T
9	80	S
10	87	S
11	77	T
12	77	T
13	78	T
14	77	T
15	78	T
16	81	S
17	77	T
18	78	T
RR	78	

Remark: S = Previously ever writes learning materials

T = Previously never writes a learning material

Based on the T test results with the same variance, it shows that for teachers who ever write learning materials get an average score of 80.5 with a variance of 0.33. Meanwhile, for teachers who previously never write learning materials get an average score of 77.6 with a variance of 0.57. Furthermore, the conclusion of the t Test Result = $t_{\text{Stat}} > t_{\text{Critical one-tail}}$ or $7.1170 > 1.7459$. Thus, there is a significant influence between teachers who ever write learning materials and teachers who never write learning materials. Thus, it can be argued that the lesson study on the development of learning materials can improve the teacher competence. The existing organizational structures and routines for professional development pose a major challenge in capacity building of district leaders and teachers to engage in lesson study (Akiba, & Wilkinson, 2016, p. 74-93). In addition to improvement in the teacher competence, there is also an improvement in the student learning outcome during learning from the open classes I to III.

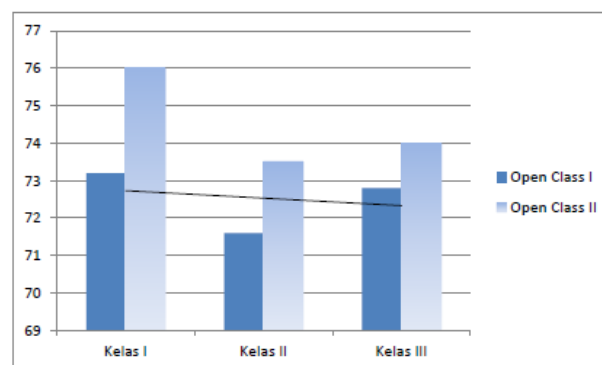


FIGURE 1. THE RESULTS OF STUDENT LEARNING OF THE CLASSES I, II AND III DURING THE OPEN CLASS

IV. CONCLUSION

Of the results of the study, it can be concluded: (1) The lesson study on the development of local potential-based learning materials can improve the competence of elementary school teachers in Alian, Mirit and Kebumen Sub-Districts in 2015. The implementation through the learning plan and the preparation of learning tools with focus group discussion/FGDs I and II. The implementation/Do is by open classes I and II and the reflection/see is to evaluate learning, thus it is better to do with FGD. (2) The lesson study can produce learning materials based on quality local potential. It is proven that 22.2% of the teachers are able to show the results of writing, learning materials in accordance with the provisions of writing good learning materials. In addition, the teachers feel the change where they initially cannot write learning materials into capable of writing good or quality learning materials. Learning based on the local potential makes students more interested, happier, enthusiastic, and the learning outcome increases.

REFERENCES

- [1] Akiba, M., & Wilkinson, B. (2016). Adopting an international innovation for teacher professional development: State and district approaches to lesson study in Florida. *Journal of Teacher Education*, 67(1), 74-93. Arifin. 1995. *Kapita Selekt Pendidikan* (Islam dan Umum). Jakarta: Bumi Aksara, Cetakan ke-3.
- [2] Borg and Gall (1983). *Educational Research, An Introduction*. New York and London. Longman Inc.
- [3] Bryk, A. S., Sebring, P. B., Allensworth, E., Luppescu, S., & Easton, J. Q. (2010). *Organizing schools for improvement: Lessons from Chicago*. Chicago, IL: University of Chicago Press.

- [4] Dillenbourg, P. (1999). What do you mean by 'collaborative learning?'. In P. Dillenbourg (Ed.), Collaborative-learning: Cognitive and computational approaches (pp. 1e19).Oxford: Elsevier.
- [5] Echols, J. M. dan Shadili, H. (1996). *Kamus Inggris-Indonesia*. Jakarta: PT Gramedia.
- [6] Horn, I. S., & Kane, B. D. (2015). Opportunities for professional learning in mathematics teacher workgroup conversations: Relationships to instructional. expertise. *The Journal of the Learning Sciences*, 24(3), 1e46.
- [7] Isoda, M. (2015). The science of lesson study in the problem solving approach M. Inprasitha, M. Isoda, P. Wang-Iverson, B.H. Yeap (Eds.), Lesson study: Challenges in mathematics education, *World Scientific, Singapore* (2015), pp. 81-108
- [8] Lewis, C. and Tsuchida. (1997). Planned educational change in Japan: The case of elementary science instruction. *Journal Education Policy*, 12 (5) (1997), pp. 313-331
- [9] Lewis, C. 2002. *Lesson study: A Handbook of Teacher-led Instructional Change*.Philadelphia: Research for Better Schools.
- [10] Ministry of Education. (2007). *The Ministerial Regulation of National Education Number 16 of 2007, Teacher Qualification and Competency Standard*. Jakarta: Ministry of Education.
- [11] *Law of the Republic of Indonesia Number 20 Year 2003 on National Education System*. Jakarta: Ministry of Education.
- [12] *Law of the Republic of Indonesia Number 14 Year 2005 regarding Teachers and Lecturers*. Jakarta: Ministry of Education.
- [13] *Government Regulation Number 32 Year 2014 on Amendment to Government Regulation Number 19 Year 2005 on National Education Standards*. Jakarta: Ministry of Education.
- [14] Santyasa. (2009). Implementasi Lesson study dalam Pembelajaran. *Makalah* dalam "Seminar Implementasi Lesson Study dalam Pembelajaran bagi Guru-Guru TK, Sekolah Dasar dan Sekolah Menengah Pertama di Kecamatan Nusa Penida, 24 Januari 2009, Nusa Penida.
- [15] Shadish, Cook, & Cambell (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston: Houghton Mifflin
- [16] Shimizu, K. and Chino, 2015. History of Lesson Study to develop good practices in Japan
- [17] M. Inprasitha, M. Isoda, P. Wang-Iverson, B.H. Yeap (Eds.), Lesson study:Challenges in mathematics education, *World Scientific, Singapore* (2015), pp. 123- 140
- [18] Smith, S.G. (2002). *Educational action research*. Diambil pada tanggal 18 Agustus 2005, dari Available [Online]: <http://www.triangle.co.uk/ear>.
- [19] Sudrajat,A. 2008. *Pendidikan Berbasis Keunggulan Lokal*.<https://akhmadsudrajat.wordpress.com/2008/08/13/konsep-dasar-pendidikanberbasis-keunggulan-lokal-pbkl>. Diunduh pada tanggal 15 April 2015.
- [20] Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006).Professional Learning Communities: A review of the Literature. *Journal of Educational Change*, 7(4), 221e258.
- [21] Sukardi (2003). *Metodologi Penelitian Pendidikan: Kompetensi dan Praktiknya*. Jakarta: Bumi Aksara.
- [22]Tilaar, H. A. R. 2002. *Manajemen Pendidikan Nasional*. Bandung: PT Remaja Rosdakarya
- [23] Webster-Wright, A. (2009). Reframing Professional Development through Understanding Authentic Professional Learning. *Review of Educational Research*, 79(2), 702e739.
- [24] Widowati.A. (2012). *Optimalisasi Potensi Lokal Sekolah Dalam Pembelajaran Biologi Berbasis Konstruktivisme*. Majalah Ilmiah Pendidikan. Jurusan Kurikulum dan Teknologi Pendidikan FIP UNY.
- [25] Yusak, M. (2008). *Lesson Study*. Jakarta.
- [26] Yamin, M. (2008). *Profesionalisme Guru dan Implementasi KTSP*. Jakarta: Gaung Persada Press.