Elementary School Learning Development Module: It's Quality and Effectiveness: A Case Study

Achmad Fanani[1], Bahauddin Azmy[2], and Dian Kusmaharti[3]

[1,2,3]Elementary School Teacher Education, Universitas PGRI Adi Buana Surabaya

Jl. Dukuh Menaggal XII Surabaya, East Java, Indonesia 60234

Email: [1]fanani.achmad61@yahoo.com

***Abstract*—** The purpose of this study was to develop a module of Elementary School Learning Development subjects as an attempt at improving the quality of teaching in the Elementary Teacher Education Program at University of PGRI Adi Buana Surabaya. In this instance it described the results of the students' and lecturers' responses on the effectiveness and quality of the product, i.e. the module developed for the school subject learning. The study was a research and development with 4-D model (Define, Design, Develop, and Disseminate). In the first year the developmental stage was implemented. It resulted in the module prototype. It was then validated by the experts. The results showed that the prototype belonged to very good category with a value of 4.85. It was confirmed by 73 % of the students who responded 'strongly agree' in the second year the application was done to the limited sample, i.e. the students of the Elementary School Teacher Education Department of University of PGRI Adi Buana Surabaya. It is effective for use as a learning resource for the learning of elementary school subjects and with excellent quality, i.e. with a mean score of 4.3.

***Keywords*—** effectiveness, quality; module development; elementary instructional development.

INTRODUCTION

Elementary School Teacher Education is important because Elementary Education is the first educational level every child must complete (Demirel et.al., 2010). It is of utmost significance as it establishes the foundation from which the learning of a person takes place. An Institute of Teacher Training for elementary school teachers provides and promotes the necessary recent reforms in elementary education. The educational institution also encourages local planning and management of strategies for strengthening and improving elementary education. It has a fairly large responsibility in preparing and training prospective elementary school teachers to be professional, ready and responsive to confront any possible changes. One form of teacher professionalism is the ability and skills in designing and implementing. Therefore, teachers are required to have adequate knowledge and skills to be able to develop learning tool kits properly (Tsao and Lin, 2012).

The Development of Elementary Learning course in the Elementary Teacher Education Program at University of PGRI Adi Buana Surabaya is in fact is the outcome of several courses that underlie the competence of prospective elementary school teachers, including courses learning strategies, development of instructional media, curriculum development, lesson planning and evaluation that have been taken from the second to fourth semester. Accordingly, there is vulnerability to forget about concepts related to the prerequisite courses delivered in separate semesters. This enables the difficulties and becomes a limiting factor in uniting the various key features of concepts included in the competence in developing lessons in elementary schools (Brodie, et.al., 2015).

To overcome these difficulties, a scenario-based learning was applied. Fanani (2013) cites that the development of the scenario-based learning increased the attractiveness of learning and showed the depth of the material, as well as described the support for material clarity. However, during this time of learning, the students lacked of connecting among the existing materials with their pre-existing knowledge and the information they find. The students come to the classroom with preconceptions about how the world works. If their initial understanding is not engaged, they may fail to grasp the new concepts and information, or they may learn them for purposes of a test but revert to their preconceptions outside the classroom. It is noted by Tait and Godfrey (2001) in Brodie et al. (2015) that those students who undertake some form of proactive prior preparation can successfully overcome initial learning barriers. They may lack the required knowledge. They may thus find the module as a learning resource beneficial for orientating themselves with the demands of the developing elementary learning experience.

Therefore, the learning scenarios were good, but they did not support the learning materials. There was then a need to design materials systematically resulted in an effective and efficient achievement of optimal learning results. Results of research conducted by Azmy (2012) indicated that the development of writing skills course

module was able to improve the achievement of students of Elementary Teacher Education Program at University of PGRI Adi Buana Surabaya. Thus the development of a learning. module for the Development of Elementary Learning course was imperative.

Learning module is planned learning materials programmatically and systematically to assist learners in achieving goals and study independently or with the teacher (Suryosubroto, 1983). Learning module allows learners to learn independently, because the modules are designed in detail to include objectives, teaching materials, exercises, assessment tools and an answer key to measure the success (Wijaya, 1992). With the module as a complementary teaching materials course, it then allows processes and student learning outcomes could be better.

Studies on teachers' teaching and instructional practices that support and develop students' learning outcomes are getting more emphasized in countries around the globe. They have addressed the performance of elementary teachers. A few of them have dealt with the perfomance of pre-service elementary teachers. One of them is Ghazali et.al (2010) from Malaysia. The study aimed at developing criteria for teachers' lesson plan, teaching aids, relevant resources used in teaching. The study then suggested that what was opposing to the teachers was the effort to make the problems easily understood and reorganizing students' understanding, encouraging high level of students' participation in the learning development. One of the ways was to develop a suitable learning module.

Another is a study by Rink and Hall (2008) on effective teaching in elementary physical school education. It investigated the effective teaching in an elementary school physical education setting in terms of academic learning time and management roles and communication and content-development skills of the teacher.

Therefore, there is a justifiable need to implement learning with the use of the course module. The module adopted the 4-D Model by Thiagarajan and the Semmels (1974) who created a systematic guide for materials development and evaluation. It focuses on the characteristics of the learner, the nature of the skills and knowledge the learner must acquire, the stipulation of objectives in behavioural terms, and the ways in which the attainment of objectives can be measured.

With reference to all above, the research problems are formulated as follows: (1) How is the process of module development of the Development of Elementary Learning course following the 4-D model as improving the quality of teaching in Elementary Teacher Education Program at University of PGRI Adi Buana Surabaya? (2) How is the effectiveness of the course modules in terms of the responses of students and teacher colleagues? (3) How is the quality of the module in terms of the responses of students and teacher colleagues?

The benefits of this research are of importance because it allows the impact on the ease and quality improvement in the learning process of the Development of Elementary Learning course. To develop competence in an area of inquiry, the students must have a deep foundation of factual knowledge, understand facts and ideas in the context of a conceptual framework, and organize knowledge in ways that facilitate retrieval and application. That is expected to ultimately improve the students' academic achievement.

This research addressed a development that aimed to develop a module of the Development of Elementary Learning course. Therefore, the research methods used in this study was the Research and Development (R & D) with 4-D (Define, Design, Develop, and Disseminate) model as suggested by Thiagarajan in Ibrahim (2001). The research steps are illustrated in Figure 1. The final product was developed based on the students' needs which the researcher investigated in the preliminary studies.

The module development adopted the 4-D model of Thiagarajan et al. (1974). The systems approach model around which the module was developed and organized was based upon the earlier models and upon actual field experience in designing, developing, evaluating, and disseminating teacher-training materials in special education.

The systems-approach the Four D Model because it divides the instructional development process into the four stages of Define, Design, Develop, and Disseminate.

The Defining stage consisted of front-end analysis and analyses of students, concepts, tasks, indicators and learning outcomes. At this stage the analyses were directed towards the students to reveal whether or not they needed the module. In selecting the instructional media and format, the concepts, tasks, achievement indicators and learning outcomes were also investigated. This step was taken in order to notice whether or not the instructional content and activities were practically relevant. In this step the researcher used questionnaires subjected to the students.

At the Designing stage, the appropriate material and media were selected. The criteria of selecting the material and media should be based on the result of front-end, learner, task, and concept analysis. The design format of the product was in the form of printed module.

At the Developing stage, the expert appraisal and developmental testing was conducted. This step was required in order to get feedback of the research. The researcher could modify the material to make it better, more appropriate and accurate. The expert appraisal was divided into two domains, they were instructional review that covered appropriateness, effectiveness and feasibility and the domain of technical review consisted of media, format and language. Through questionnaires, the researcher employed three experts. In the developmental testing, the product was brought into the field and applied to the students. Through checklist the researcher used observation technique to analyse the condition of the students and the activity process in the field. At the end of the meeting, the questionnaires were distributed in order to know the students' responses toward the modules.

In the Dissemination stage, the evaluations of the students' responses were undertaken. The first evaluation was internal evaluation done by the researchers themselves meant to know whether or not the module has already met the criteria determined by the researchers. The modules were then modified based on the result of field test. The second evaluation was conducted by the experts by through the similar questionnaires to the step of expert appraisal. It was intended to collect the experts' opinions on the instructional and technical quality of developed materials. In this case, the experts' opinions would not be used to modify the material but to provide the experts 'objective judgment as a part of the final validation report. Finally, the researcher tried to publish the final product in order that other instructors can take benefit from the modules to improve the quality of teaching activities in exciting ways.

The modules were validated by expert in terms of learning content and media. They were then tested individually and to the limited group. The modules as products were developed and equipped with pictures or illustrations relevant to reality in the field and job sheet that can provide practical activities to make students more active. The practice activities only needed a computer/laptop. The modules can be used independently or in groups. They can be used both inside and outside of school. With the modules, the students can learn at their own pace, and teachers act as facilitators.

The location of this research is the Elementary Teacher Education Program at University of PGRI Adi Buana Surabaya. The research data were in the form of responses/feedbacks from validators, lecturers, and students in relation to the effectiveness and quality of the course module development The techniques used to gather the data were questionnaires on validation of content and instruments, the effectiveness of the module, as well as the quality of the modules administered to the lecturers of the Development of Elementary Learning and students who had taken the course.

The data were analysed descriptively by using the average number of respondents per questionnaire item measuring every aspect of the module. The resulted responses generally describe the quality of the modules and each module section in question. The aspects of quality criteria used are as following:

The average response formula for each aspect is $\frac{\Sigma x}{N}$

where x is the value of scores of respondents of each item and N is the number of respondents. The criteria for the quality of each aspect or item of the questionnaire used the size of the interval as follows:

4.2 to 5.0: Very good
3.5 to 4.1: Good
2.7 to 3.4: Fair
1.9-2 .6: Poor
1.0 to 1.8: Very poor

METHOD

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RESULTS AND DISCUSSION

The planning stage of the module was comprised of several activities. They were sharing with the lecturers of the Development of Elementary Learning for feedback and discussion related to the form of systematic and content of the module in order to contain what is in accordance with the needs of competence stipulated in the description of the courses as well as learning experience by students taking the course. The systematic module used in this study was referred to the guidelines for the module development in order to increase the competence of primary school teachers through the integrated training programs conducted by the *Pusbangprodik Kemendikbud* (The Teacher Professionalism Centre of the Ministry of Culture and Education). The result of the validation analysis of the module development is presented in Table 1.

Table 1: *Result of the module validation*

No	Aspects to assessed	Average	Category
1	Display	4.83	Very Good
2	Contents	4.9	Very Good
3	Language	4.83	Very Good
	Average	***4.85***	***Very Good***

While the validation results of the questionnaires to obtain respondents obtained a mean value of 4.83for the format aspect format which was categorized as 'very good', the content of 4.6 (very good), and 4.25 (very good) with a mean value of 4.56 with the overall aspect was included in 'very good' category.

Based on the questionnaire result on the effectiveness of the module on the Elementary Learning Tool Development is shown in Table 2. Table 2 the lecturers' questionnaire results. Bassed on data from the students' questionnaire results on the effectiveness of the learning modules can be seen in table 2.

Figure 2: *the students' questionnaire results*

No	Aspects considered	Average 1	Average 2	X	Category
1	Display of module	4.09	4.66	4.38	very good
2	Contents	4.16	4.52	4.34	very good
3	Feasibility of contents	4.17	4.66	4.42	very good
4	Language	4.05	4.6	4.33	very good
	Average	4.12	4.61	4.37	very good

Based on the results, the responses of the lecturers and students on average stated 'strongly agree' by 20.13%, 73.42% agree, and 6.45% disagree regarding the effectiveness of the learning device development module. This is consistent with the study by Ismail, et al (2009) about the effectiveness of the modules used in training to increase the ability of the teacher's knowledge in Jordan. The developed module consisted of 10 sessions covering three dimensions, namely planning, classroom management and evaluation. The results show that there is a significant difference in the average score of the post tests administered to both experimental and control groups. The module proved to play an important role in developing the instructional competencies of the special education teachers.

The results of the small group and large group trials showed that the quality of the module are concerned with these aspects: (1) the display of module (including cover, systematic, numbering, arrangement, and layout), the lecturers had a mean score of 4.5 (very good) and the students responded with the average score of 4.38 (very good), (2) the module content (i.e. completeness of the content of the module, the introduction, and the learning activities), the lecturer stated with a mean score of 4.3 (very good), the students expressed by the average score of 4.31 (very good). (3) the eligibility module content (i.e. inconformity with the needs of the attainment of the development of learning at the elementary school level, describing the content of the material, compliance with the 2013 curriculum allowing the students to actively learn, eligibility of media/ source of independent learning, adding to and helping achieve the competence to develop learning device, the coverage of examples in module, the coverage of exercises in the module, depth and breadth of content of the module, a summary/overview, formative tests, glossary, bibliography, lecturers stated with a mean score of 4.4 (very good), the students expressed by the average score of 4.42 (very good). (4) language (language used, the use of the standard language, instructions/commands in the module, quotation), the lecturer stated with a mean score of 4.3 (very good), the students expressed by the average score of 4.33 (very good).

Based on the results of the data, it showed that the responses of the lecturers and the students on average were of the quality of the elementary learning module developed in this study and was categorized as 'very good' with a mean score of 4.38. The content and eligibility of the module contents in this module shows the very good category, thereby allowing students as the module users to be more effective and efficient in achieving competences in the development of elementary learning device. This is supported by Rowland and Adams (1999: 33) stating that this aspect answers questions about what knowledge and skills are required to meet the needs, that is, to reduce the gap in performance. This requires a teacher to consider this aspect to carefully select what knowledge and skills are included in the learning system, and ensure that these materials can support their success in meeting the needs of learners and achieve learning objectives.

According to Kirschner (1997: 89), to support successful learning, a teacher must be creative in creating ideas in designing a new learning system that is capable of making the students participate actively and can achieve learning goals. It is included in a process component that focuses on strategies, models and teaching methods. This can be accomplished with the support of the modules that are effective in meeting the needs of the development of learning competencies.

Van den Akker and Nieveen (1999) stated that in the development of learning models, it is necessary to meet the quality criteria namely the validity, practicality, and efficacy (effectiveness). With the development of the module on developing elementary learning, effective learning can be achieved and it would enable the students are to achieve competences in developing a learning tool in elementary schools.

CONCLUSION

Based on the results of the research while, it can be concluded as follows.

1. Through the various stages of the development of the modules including the planning, module writing, module validation, small group trial, large group testing and revision, it has resulted in the module prototype. The results of data analysis showed that the overall validation of the module developed, including the results of the validation by experts having the 'excellent' category with a score of 4.85'
2. From the responses of the lecturers teaching the Development of Elementary Learning course and the students who were and had been taking the course, 20.13% of them stated that they strongly agreed, 73.42% agreed, and only 6.45% disagreed that the learning module developed in this study was effective for use as a learning resource in the course.
3. From the responses of the lecturers teaching the Development of Elementary Learning course and the students who were and had been taking the course, it indicated that the learning module development kit developed in this study was regarded to have a very good quality with a mean score of 4.3.

With reference to the above conclusion, some suggestions are presented as follows.

1. A needs analysis for the competence achievement of students in elementary schools to develop learning tools will not be sufficient if it is only conducted with colleagues/lecturer of the courses as well as the scrutiny of the course descriptions, but it will better engage students and stakeholders, for instance, teachers /practitioners in primary schools) to give a better picture of about the need for real competences in developing a learning tool in elementary schools
2. It is necessary for the lecturers of the course to develop similar modules to support the achievement of competencies related subjects, thus enabling the achievement of effectiveness for the lectures to gain more optimal efficiency
3. There is a need to do further research to discover the results of implementation of the module developed in this study, so the usefulness of this product can be more complete, effective and of quality in an effort to help the students in improving competences in the development of learning in elementary schools.

ACKNOWLEDGEMENT

The authors thank to the Directorate General of Resources for Science, Technology and Higher Education of the Republic of Indonesia that has funded the research.

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