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WAS THE DESIGN OF LEARNING OBJECTIVES IN THE MODULE SUITABLE FOR IMPROVING CRITICAL THINKING SKILLS OF THE 21st CENTURY?

Ayu Perdanasari, Sudiyanto and Khresna Bayu Sangka
Master of Economic Education, Postgraduate, Universitas Sebelas Maret Surakarta, Indonesia

ABSTRACT

21st century learning and teaching were important topics in the world of education. Education was an effort to improve the quality of human resources. Therefore, it was for organizing quality learning so as to produce competent graduates. Critical thinking was one of the skills expected by students. These skills can be trained and developed in the learning process one of them by the use of teaching materials. Modules become one of the choices of teaching materials used because it was designed systematically based on the curriculum and learning objectives according to the expected competencies. This article aims to analyze the suitability of module teaching materials to improve critical thinking in terms of learning objectives. The formulation of learning objectives must be directed at the cognitive level of analyzing, evaluating and creating which can train students' critical thinking.

KEYWORDS: Learning objectives, Module, Critical Thinking Skills. 21st Century

INTRODUCTION

Development of educational thinking related to 21st century learning and teaching were important points in preparing individuals to be ready to face increasingly complex global challenges. These developments must focus on programs designed for 21st century students which provide opportunities to eliminate concerns about the consistency of learning through quality planning, teaching and learning (Boyer & Crippen, 2014).

The British Columbia Education Ministry (2012b) said design specifications to build 21st century learning and teaching competencies covering 3 basic elements namely core subjects; themes and skills of 21st century. Furthermore, Kay (2008) revealed several 21st century skills needed: (1) critical thinking (78%); (2) information technology (77%); (3) health and fitness (76%); (4) collaboration (74%); (5) innovation (74%); (6) personal financial responsibility (72%). Based on the data, critical thinking skills were the skills most needed in the 21st century and lead to lifelong learning. Correspondingly, Duran & Şendağ (2012) & Ennis (2013) supported critical thinking skills whose one of the important skills that must be prioritized by 21st century students so as to improve the quality of life of each individual.

Education in Indonesia had changed one of them in terms of curriculum from the Education Unit Level Curriculum to the 2013 Curriculum. The implementation of the 2013 curriculum requires the integration of character education and skills 21st century in learning activities. Minister of Education

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and Culture Regulation No. 22 of 2016 concerning basic and secondary education process standards that the learning process in the education unit was held interactively, inspiratively, fun, challenging, motivates students to participate actively, and provides sufficient space for initiative, creativity, and independence in accordance with the talents, interests and physical and psychological development of students. Therefore, it was important for teachers to draw up a learning implementation plan in accordance with the curriculum and learning demands of the 21st century.

Prastowo (2012) said that interest, effective, and efficient learning required innovative teaching materials not just conventional teaching materials. A teacher must be required to be creative to arrange innovative, varied, interesting, contextual and suitable teaching material in accordance with the level of student needs. One of the teaching materials that can be used was a module. Module was teaching materials that can be used by students to study independently or with teacher guidance. Therefore, it was important in designing modules that fit the 21st century curriculum and learning so as to be able to provide learning experiences and practice critical thinking skills for students. Therefore, research will be carried out related to teaching materials in the form of modules used in Surakarta schools. "Was the design of learning objectives in the module suitable for improving critical thinking skills of the 21st century?"

LITERATURE REVIEW

Critical Thinking

Critical thinking was the ability of reflective thinking to develop and exert cognitive and metacognitive skills of students through analysis, interpretation, inference, induction, deduction and evaluation (Yeh, 2009). Correspondingly, Anderson & Krathwohl (2001) said that critical thinking skills include several skills that encourage individuals to identify assumptions, make judgments, analyze arguments, and answer clarifying questions. Based on the understanding of thinking above it can be seen that critical thinking skills are not formed instantly but through several stages. Critical thinking skills were formed through the activities of analyzing, evaluating and creating included in Higher Order Thinking Skills (HOTS) (Anderson & Krathwohl, 2001). Therefore, the teacher needs to plan learning activities for students in the classroom. Provision of teaching materials was one of the important things prepared so that it can arouse students 'motivation to actively participate in learning so that students' critical thinking skills can be increased (Prastowo, 2013).

Teaching Material of Module

Prastowo (2013) defined teaching materials as all materials (good information, tools as well as text) that was arranged systematically, which displays material from competencies that were mastered by students and used in the learning process with the aim of planning and studying learning implementation. One of the objectives of using modules developed students' skills in interacting directly with the environment and other learning resources so as to gain a learning experience that is closer to real conditions. Furthermore Mulyati (2002) mentions the module structure consisting of 1) Introduction, 2) Learning Objectives, 3) Materials, 4) Learning Activities, 5) Exercises, 6) Success

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Criteria, and 7) Reference. Based on the opinions above, the emphasis in designing modules was the learning objectives. It was very important considering the modules designed must have clear objectives and fit the demands of the curriculum and learning of the 21st century. One of the 21st century skills for students was critical thinking. Therefore the learning objectives should lead to a high level of cognitive skills namely analyzing (C4), evaluating (C5) and creating (C6) so as to improve students' critical thinking skills.

Table 1. Outline of learning objectives

Cognitive Levels	**Indicator for learning objectives**
Remember (C1)	Recognizing, recalling
Understand (C2)	Interpreting, exemplying, classifying, summarizing, inferring, comparing, explaining
Apply (C3)	Excutting, implementing
Analyze (C4)	differentiating, organizing, attributing
Evaluate (C5)	checking, criticizing, judging
Create (C6)	formulating, planning, producing

(Sourcer: Adapted Budiyono, 2015)

METHOD

The research method used to answer the problem was quantitative research. The data source comes from documents in the form of teaching materials in the form of modules. Collecting data on the suitability of formulating learning objectives using the checklist sheet. Data collection techniques using observation and documentation. Data analysis uses descriptive statistics.

FINDING

The results of observing documents related to the suitability of module teaching materials to improve critical thinking can be seen as follows:

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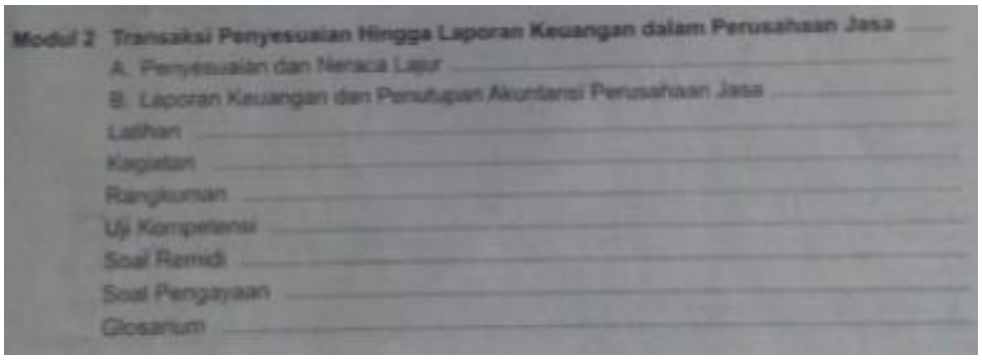

Figure 1. Module Structure

Furthermore, the data obtained were analyzed into the checklist sheet so that the following information obtained:

Table 2. Suitability of module structure

No.	Structural Module	Yes	No
1.	Introduction		√
2.	Learning Objectives	√	
3.	Material	√	
4.	Learning Activities	√	
5.	Exercise (Tasks & Exercises)	√	
6.	Success Criteria		√
7.	Reference	√	

(Source: Primary data processed, 2020)

Furthermore, the findings related to the suitability of the learning objectives contained in the module can be seen in the following figure:

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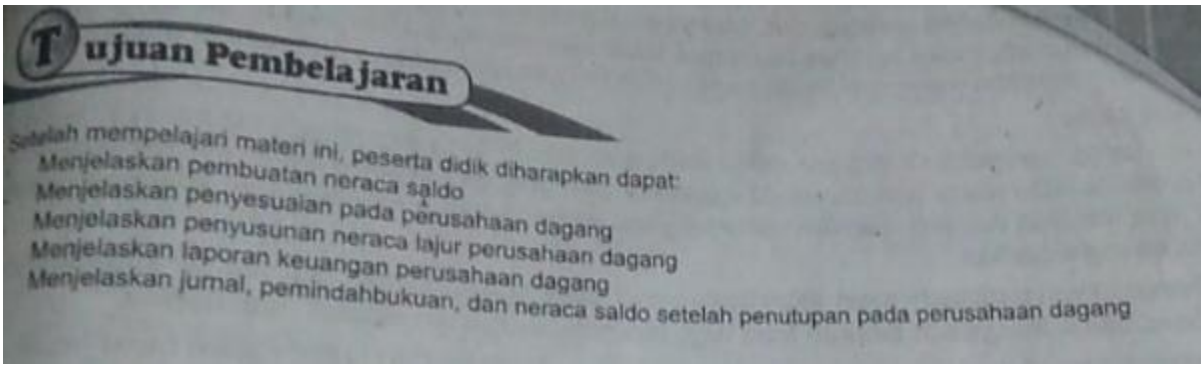

Figure 2. Learning Objectives in the Module

Furthermore, the data obtained were analyzed in a checklist sheet so that information on the suitability of learning objectives in the module was obtained to improve students' critical thinking skills as follows**:**

Table 3. Suitability of learning objectives:

Learning Objectives	Cognitive Level					
	C1	C2	C3	C4	C5	C6
Explain the making of a trial balance		√				
Explain the preparation of a trading company		√				
Explain adjustments to a trading company		√				
Explain the financial statements of a trading company		√				
Explain the journal, bookkeeping, and balance sheet balance after closing at a trading company		√				

(Source : Primary data processed, 2020)

DISCUSSION

Based on the results of observing documents related to the module structure, it should be known that the learning objectives have been presented in the learning modules (table 2). Learning objectives were presented at each beginning of the module before the delivery of learning material or content. This shows that learning objectives become important points that need to be presented can be seen from the benefits for teachers and students. Benefits for teachers as a guide in conducting teaching and learning activities in order to achieve the abilities expected to be owned by students. Then the

benefits for students as initial information about the importance of participating in teaching and learning activities so as to motivate active participation in learning activities. It was in line with the opinion of Yih Chyn & Huijser (2011) that it was necessary to rethink the learning objectives so that they can develop critical thinking skills among students.

Furthermore, the observation results related to the formulation of learning objectives in the module found that learning objectives have not directed students to have critical thinking skills in accordance with the demands of the 2013 curriculum and 21st century learning. This is indicated from the findings in table 3 that the learning objectives in the module are still at the cognitive level of understanding (C2) which should be at the cognitive level of analyzing (C4), evaluating (C5) and creating (C6) which leads to higher-order thinking skills and to practice critical thinking skills.

Understanding (C2) cognitive level can be seen from the verb that is used only to use the word "explain" in each sub material taught. This cognitive level is included in the level of l Low Order Thinking Skills (LOTS). At this level students were taught the basic concepts of the material not yet taught the applicative value of the material to be learned into everyday life. This will result in the mindset of students who only memorize the material without knowing its use to solve everyday problems. The learning objectives presented in the module will give rise to the perception of students that the abilities expected in learning are only at the stage of being able to explain and repeat the material being taught. This results in them simply memorizing the material taught without really understanding the topic and its uses in everyday life.

The importance of formulating goals was adjusted to the demands of curriculum and learning in the 21st century. That needs attention because the school is the initial environment for socializing before actually returning to the community Teachers prepare learning activities that will equip students with life-long life skills. One of them was in designing learning objectives to improve critical thinking. Critical thinking was a process of thinking to make decisions from various relevant sources of information which are ultimately practiced by students in real life (Setyowati & Habibah, 2020).

CONCLUSION

Based on the findings of the results and discussion, it can be concluded that the module teaching material was not suitable for improving students' critical thinking skills in terms of learning objectives. Learning objectives were still at the level of understanding (C2) not yet leading to the cognitive level of analyzing (C4), evaluating (C5), and creating (C6) which trains students to improve students' critical thinking.

REFERENCES

Anderson, L. W.,& Krathwohl, D. R. (2001). A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom’s Taxonomy of Educational Objectives. New York, NY: Longman.

ISSN 2581-5148

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Boyer, W., & Crippen, C. L. (2014). Learning and Teaching in the 21st Century: An Education Plan for the New Millennium Developed in British Columbia, Canada. Childhood Education, 90(5), 343–353.

British Columbia Ministry of Education. (2012b). Personalized learning parents' guide. Retrieved from www.bced.gov.bc.ca/personalizedlearning/parentsguide/index.html#/10

Budiyono. (2015). Pengantar Penilaian Hasil Belajar. Surakarta: UNS Press.

Duran, M., & Şendağ, S. (2012). A preliminary investigation into critical thinking skills of urban high school students: Role of an IT/STEM program. Creative Education, 3(2), 241-250 http://dx.doi.org/10.4236/ce.2012.32038.

Ennis, R. H. (2013). Critical thinking across the curriculum (CTAC). In D. Mohammed, & M. Lewiński (Eds.), Virtues of Argumentation. Proceedings of the 10th International Conference of the Ontario Society for the Study of Argumentation (OSSA) (pp.1-16)..

Kay, K. 17 January, 2008. Preparing Every Child for the 21st Century. Paper Presented In APEC EdNet - Xi'an Symposium, China. Retrived from http://www.seiservices.com/APEC/ednetsymposium/downloads/PartnershipfOr21CenturySkills.pdf

Mulyati, Y. (2002). Pokok-Pokok Pikiran Tentang Penulisan Bahan Ajar dan Diklat. Pendidikan dan Latihan Bahasa Indonesia dan Bahasa Inggris. Jakarta: Directorate General of Primary and Secondary Education

Minister of Education and Culture. (2016). Peraturan Menteri Pendidikan dan Kebudayaan Nomor 22 Tahun 2016 Tentang Standar Proses Pendidikan Dasar dan Menengah. Jakarta: Minister of Education and Culture.

Prastowo, A. (2012). Panduan Kreatif Membuat Bahan Ajar Inovatif. Yogyakarta: Diva Press

Prastowo, A. (2013). Pengembangan Bahan Ajar Tematik. Yogyakarta: Diva Press.

Setyowati, R. N., Sari, M. M. K., & Habibah, S. M. (2020). Improving Critical Thinking Skills of Students through the Development of Teaching Materials. Advances in Social Science, Education and Humanities Research, volume 226, 1st International Conference on Social Sciences (ICSS 2018), 240-245.

Yeh, Y. C. (2009). Integrating e-learning into the Direct Instruction Model to enhance the effectiveness of critical thinking instruction. Instructional Science. 37 (2), 185-203.

Yih Chyn A, M., & Huijser, H. (2011). The power of problem-based learning in developing critical thinking skills: Preparing students for tomorrow's digital futures in today's classrooms. Higher Education Research and Development. 30(3), 329-341