

DEVELOPING LEARNING PROCESS SCENARIO: PROJECT-BASED LEARNING IN ECONOMICS FOR SENIOR HIGH SCHOOL

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Accepted date: 14-09-2018 Published date: 11-03-2019

To cite this document: Nuraini, U., Nuris, D. M., & Nagari, P. M. (2019). Developing Learning Process Scenario: Project-based Learning in Economics for Senior High School. *International Journal of Education, Psychology and Counseling*, 4 (25). 33-43.

Abstract: The learning approach used in the National Curriculum 2013 is a scientific approach. In order to strengthen integrated scientific, thematic and thematic approaches, PjBL needs to be implemented. This study aims to encourage the ability of students to produce contextual work, both individually and in groups This study aims to develop PjBL scenario on economics subject in senior high school. The subject of the experiment is students of class ten majoring in social science. The product of this study is the guidance of PjBL scenario for teachers. The results of this study found that economic teaching and learning process through the development of PjBL scenarios not only can develop students' knowledge but also develop their attitudes and skills. This means that the PjBL model is in accordance with the objective of the teaching-learning process in National Curriculum 2013 is to develop attitude, knowledge, and skill. This study showed that developing PjBL scenario holds the potential to be an innovative learning approach in teaching and learning.

Keywords: Constructivist Learning, Project-Based Learning

Introduction

The current curriculum in Indonesia is the curriculum 2013, where the competency standards of graduates are the qualifications of students' graduate abilities which include attitudes, knowledge, and skills. In the national curriculum 2013, economics subject in senior high school is a specialization subject. The objectives of economics are (1) to understand the economics concept for relating its problems to daily life individually in family, society, and even country; (2) to increase curiosity of students in understanding the economics concept; (3) to develop knowledge and skill in economics for individual, family, society, and country's

sake wisely, rationally, and responsibly; and (4) to decide social and economic value as a responsible consumers in national and international heterogenous society.

Teaching and learning process needed for obtaining the objectives above is the one that can develop students' capability in understanding concept, knowing real economic problems, and solving the problems in daily life. Therefore, economic learning should be concerned with the opportunity for students to construct knowledge in their cognitive processes. In Permendikbud Number 65 of 2013 explains that to encourage the ability of students to produce contextual work, it is strongly recommended to use a problem-solving based learning approach that produces work. It can use the Project-Based Learning (PjBL) model.

PjBL is one of the constructivism learning theories which suggests that humans as learners must build their own knowledge. Sultana and Zaki (2015), PjBL is a better learning method compared to traditional ones. Learning is something that happens quite naturally and goes by quite unnoticed in many cases (Pritchard, 2009). PjBL is the instructional strategy of empowering learners to pursue content knowledge on their own and demonstrate their new understandings through a variety of presentation modes (Klein, 2009). Thomas (2000) establishes five criteria of whether project learning includes PjBL or not. The five criteria are as follows: centrality, driving question, constructive investigation, autonomy, and realism.

The study in Francisco identifies participants' perceptions of economic subjects that economic learning is too boring, too abstract, and high photography on memorization (Sundmacher, & Varua, 2011). In addition, in a journal written by Yeunglamko (2011), students at the University of France expressed dissatisfaction with the economic learning they received. Many countries have a tradition of instructivist-based practices, which rely on didactic lectures, rote memorization and high-stakes exams (Porcaro, 2011). Based on a preliminary survey by the researchers in several senior high schools in Indonesia, economic learning model still uses teacher-centered learning. In preparing the learning scenario, the teacher also still does not refer to the objectives of economic subjects according to the national curriculum 2013. The results of interviews with students, the information was obtained that students still had difficulties in learning economics. Students illustrate expected economic learning is economic learning where students not only accept theory or explanation of material from the teacher, but students need to observe directly the events that occur in their environment, which are related to the topic of economic material they learn in school. Based on data from observations and interviews with teachers and students, the researchers need to develop a learning scenario that can help overcome problems in economic learning. One learning model that can support the achievement of the four objectives of economic subjects is the PjBL model.

Literature Review

Constructivist Learning Theory

A learning model is always built on supporting theories the theory underlying the implementation of PjBL is constructivist learning theory. Constructivist learning theory is a theory that emphasizes learning where students construct their own knowledge. In learning, the teacher empowers more experience and potential that has been formed in students. Mohammad & Farhana (2018), a constructivist teacher builds a learning environment for students that fosters individual and collaborative learning and presents problems that must be solved. While students seek their own ways to produce meaningful artifacts personally

without further teacher intervention. After that, the teacher guides them to achieve the learning objectives.

Baker, McGaw, & Peterson (2007), constructivism has two fields of study. There are cognitive studies and social studies. Cognitive constructivism is based on the views of Swiss psychologist, Jean Piaget, who states that learning is a development process that involves change, self-appearance, and construction, which is built from previous learning experiences. Whereas social constructivism is based on the view of Russian psychologist Lev Vygotsky, which states that the thinking and formation of meaning are socially shaped and their social interactions emerge with the environment. This view portrays human development as an inseparable from social and cultural activities. In social constructivism, students create their knowledge through social interaction. Maypole & Davies (2001), students build knowledge as part of a social unit, but knowledge is not a separate entity for themselves, and knowledge cannot be separated from those who know.

The implication of constructivism theories in learning lies in the learning objectives, that is to produce students who have the ability to think to solve every problem faced and are able to construct their knowledge and skills. The characteristics of the constructivism approach are in accordance with the learning characteristics of the national curriculum 2013, where the learning process is student-centered learning. The teacher stimulates thought through the creation of a problem and then lets students express their ideas and concepts and is critical in testing the concepts of students. One of the learning models that support the implementation of constructivist learning is PjBL.

Project-Based Learning

Maida (2011), PjBL challenges students by recognizing their role as participants involved in generating knowledge. PjBL is learning that is centered on active students characterized by student autonomy, constructive investigation, goal setting, collaboration, communication, and reflection in real-world practices (Kokotsaki, Menzies, & Wiggins: 2016). PjBL focuses on student involvement in a project. The meaning of the project in learning here is a task that involves students in problem-solving investigations, working independently building their own knowledge, and reaching the peak of producing real products. Product characteristics of development at each stage of PjBL are (1) start with essential question; (2) design a plan for the project; (3) create a schedule; (4) monitor the students and the progress of the project; (5) assess the outcome; and (6) evaluate the experience.

Bell (2010), PjBL is the main strategy for creating independent thinkers and students. Students solve real-world problems by designing their own questions, planning their learning, organizing their research, and applying many learning strategies. in addition, students gain valuable skills that will build a strong foundation for their future in our global economy. In developing PjBL scenarios in economic subjects, students are faced with problem-solving investigations and working independently and in groups to build their own knowledge. The students not only can develop their knowledge in the economic field but also to develop their attitudes and skills in solving economic problems in everyday life.

Basically, learning has the main purpose, that is the students have the abilities expected by the students themselves after gaining learning experience. Therefore, aspects of learning objectives must be formulated in a scenario or design of learning clearly and specifically, can be measured, and can be observed in its achievements. An instructional design must take into

account some principles of human learning, especially, the conditions for learning occurs (Gagne and Briggs, 1979). In designing teaching, Bloom's taxonomy provides a set of classifications for learner cognitive processes that are included in learning objectives (Anderson, et. Al., 2001). If most of the previous studies are PjBL applied to determine the advantages and differences by using conventional models, this research emphasizes the development of PjBL scenario using the DBR approach and its application adjusted to the needs or problems that occur in the field.

Design and Methodology

This research model uses the DBR approach in order to answer research problems. Design-Based Research (DBR) is a new methodological framework that was developed in the context of the learning sciences, it is more process-oriented and context-sensitive (Jen, Moon, & Samarapungavan, 2015). DBR is research that functions to design and develop an educational intervention with the aim of developing knowledge about the characteristics of the intervention and the process of developing the intervention. The intervention referred to here is an action designed to develop an atmosphere of learning interaction and help students in achieving the expected learning goals. Anderson & Shattuck (2012), the design of the intervention is a key feature of the quality and results of the research project. DBR can be applied to research development learning models in the classroom that aims to develop and study the impact of interventions in the teaching and learning process through a naturalistic approach. DBR methods can compose a coherent methodology that bridges theoretical research and educational practice. The development procedure in this study can be seen in figure 1:



Figure 1: Procedures for Developing Learning Scenario of PjBL

The basic researchers using the DBR approach are (1) in DBR, researchers, as well as designers, learn in collaboration with practitioners and users (economic teachers), so that design results can be obtained that have contextual sensitivity; (2) DBR leads to the development of knowledge that can be used in learning practices and can be used as additional information and references for other practitioners and designers; and (3) DBR documents and links the final results with the development process and authentic settings. In this study there was a collaboration between researchers and practitioners in order to improve learning practices, that is in the preparation of learning scenarios and prototype feasibility tests.

The Testing Subjects

The subjects in this study were 40 students of class X IIS 1 in SMA Wachid Hasyim 2 Taman, East Java, Indonesia. The researcher chose this class because they had almost the same characteristics in the learning process. The preliminary field testing was implemented in class X IIS 5 to find out whether students are potential or not in PjBL and then was implemented in class X IIS 1 after the final product scenario of PjBL is complete.

The Data and Instruments

The data in this study are (1) data on economic learning in schools, both obtained from student and teacher interviews, observation, and documentation; (2) observation results of the implementation of PjBL scenarios (learning activities and student assessment); and (3) data about the response of students and teachers after using PjBL learning scenario. The instruments used to collect data in this study are (1) interview sheet, to find out the response of the teacher and students at the time before and after using the PjBL scenario; (2) observation sheet, to provide an assessment during the testing and its results; and (3) interview sheet, to find out the response of the teacher and students at the time before and after using the PjBL scenario; (2) observation sheet, to find out the response of the teacher and students at the time before and after using the testing and its results; and (3) interview sheet, to find out the response of the teacher and students at the time before and after using the PjBL scenario.

The Data Analysis

The data analysis technique uses qualitative and quantitative data analysis techniques. The qualitative analysis techniques are used to collect data about the analysis of teacher and student needs on PjBL scenario, that is from the results of interviews with teachers and students. In addition, there are used to describe the results of observations of the implementation of the results of product trials through the responses of teachers and students. The quantitative data analysis techniques are used to describe the results of observations of the implementation of product trials which include learning activities and student assessment by the teacher. Data analysis of the observation sheet is calculated by the percentage of each aspect assessed. If the assessment is "yes", it is given a score of "1" and if the assessment is "no", it is given a score of "0". This method of valuation is calculated by the following percentage formula:

Total score obtained	Х
100% The highest number of criteria scores	

Analysis and Findings

The first step taken by researchers based on the step of DBR is the identification of the problem of developing a PjBL scenario. This step aims to analyze the needs of students and teachers in PjBL scenarios. In this first step, the researcher begins the activity by observing

economic learning in the classroom, distributing questionnaires to all students of class X social sciences, interviewing the students and teachers to follow up or complete the answers to the questionnaires that they have filled in. From the results of the recapitulation of filling out questionnaires distributed to students of class X, as many as 70.20% of students have difficulty in learning economics; 64.88% of students do not like the learning model used by the teacher; 60% of students feel that they don't get the opportunity from the teacher to explain the experiences they have experienced related to economic material; 89.27% of students agreed that learning through direct observation in the field also do the simple research which was then discussed in class; 53.17% of students feel that economics is beneficial to their daily lives; and 100% of students want or expect economic learning to take place even better. The researchers also interviewed teachers and students to find out the problems of economic learning. The problems that occur arise due to the gap between expectations and reality, so researchers need to develop a learning scenario that can overcome the problems.

In the second step, researchers formulate learning scenarios that can help in solving economic learning problems that occur in schools. The learning model that can support the achievement of the four objectives of economic subjects and can develop the realm of attitudes, knowledge, and skills of students is a PjBL model. Basic Competencies (KD) that support the learning model of PjBL are KD 3.4 and KD 4.4. KD 3.4 describes the concept of the market and the formation of market prices and KD 4.4 is conduct research on markets and the formation of market prices in the economy, where students do simple research on the market. The steps of implementing PjBL in this scenario consist of six steps, that are: (a) start with the essential question, (b) design a plan for the project, (c) create a schedule, (d) monitor the students and the progress of the project, (e) assess the outcome, and (f) evaluate the experience.

Before designing a learning scenario, the researcher first identifies the potential of students and before the scenario is tested, validation is done by a team of experts and teachers. After that, the researcher conducted a field trial to determine the feasibility of the products that had been developed. The results of the field testing in the form of learning PjBL scenarios have produced several empirical findings of research: (1) the PjBL scenario developed collaboratively is based on the real conditions of the problems in the field; (2) the development of learning scenarios has been validated by an expert team before being tested; (3) in general the results of the field testing of the implementation of PjBL learning scenarios have been tested for feasibility.

The next step is to design a learning scenario PjBL. In the third step this includes (1) design a scenario conceptually, which is in accordance with the objectives to be achieved in economic subjects; (2) arrange a prototype scenario for PjBL; and (3) perform scenario validation with a team of experts and economic teachers. Before the scenario is tested, validation is done first. This PjBL scenario is validated by a team of researchers, lecturers, and economic teachers. From the results of a review of the PjBL scenario by the lecturers, it can be concluded that the scenario has met the indicators that have been formulated. But the researchers got advice from the expert team, that is, in the step of PjBL activities must be in accordance with the characteristics of the 2013 curriculum learning. Material learning about markets and market prices must be related to opportunities for students to construct knowledge in their cognitive processes.

In the fourth step, the researchers test a prototype of PjBL scenario and evaluation of the learning scenario after testing. Learning evaluation activities are done through observation of learning activities by other teachers and then asking responses from teachers and students after the PjBL scenario is used. The step of implementation of PjBL scenario can be seen in figure 2.



Figure 2: The Steps of Field Testing of PjBL Scenario

The main purpose of implementing this field testing is to find out the feasibility of the products that have been developed. While the steps of PjBL implementation can be seen in the following picture:

Figure 3: The Steps of the PjBL Implementation

(1) Start with Essential Question

The teacher gives basic questions about the market and relates to the experience/ knowledge of students about the market and examples of types of markets. Then the teacher gives the topic of problems related to markets.

(4) Monitor the Students and the Progress of the Project

The teacher monitors the activities of students during the process of completing the project, then the teacher makes an assessment rubric that can record the overall important activities of the students.

(2) Design A Plan for the Project

Teacher and students collaboratively develop project plans. The teacher gives a project assignment in the form of identifying problems in traditional markets and giving an overview of the project framework that can help students answer questions and project activities.

(3) Create a Schedule

The teacher prepares the project completion time, that is two weeks to complete the project. In addition, the teacher guides students if they propose other plans related to the preparation of the project design.

(5) Assess the Outcome

The teacher do an assessment to measure the standard achievement achieved by each group in accordance with the assessment format that has been made previously.

(6) Evaluate the Experience

Students present the results of the study and discuss it with other group members. The teacher responds to questions about the results of the student's research and assesses the presentation and results of the project from each group. The project referred to in PjBL is where students do simple research in groups to conduct investigations or observations directly to find out the real conditions of economic activity in the market. From 40 students, the teacher formed into 8 groups. Each group was asked to do research the market price of a product, such as sugar, eggs, rice, fruit, and vegetables traded in traditional markets around their neighborhood. The project framework includes problems related to the process of forming the market price of the product. They observe in traditional markets to obtain data about product purchases and sales. From the data they obtained, then analyzed to find solutions to these problems, that is how the market price of the product could occur. From the cognitive aspect, students no longer define the market as a meeting place for sellers and buyers, but the market is a relationship between the overall demand and supply of goods and services. The students who also act as an economic actor certainly cannot be separated from demand and supply. They become more understanding that when they buy, sell goods and services, or when buying and selling transactions, there are requests and offers.

Analysis of learning activities is done by teaching colleagues. The description consists of four indicators, there are (1) the accuracy of the material, (2) mastery of the learning material, (3) the use of learning method, and (4) the assessment, where all that has been done 100%. The student performance assessment is carried out from the beginning to the end of the project completion. During the learning process takes place, the students tend to be active and can work together with their group members well. The percentage of the overall activity of students during work on the project are: (1) group-A is 90%; (2) group-B is 93.33%; (3) group-C is 96.67%; (4) group-D is 93.33%; (5) group-E is 90%; (6) group-F is 100%; (7) group-G is 96.67%; and (9) group-H is 83.33%.

The last step taken by researchers based on the step of DBR is reporting and discuss the experiment results. In this step the researchers communicating the results of the prototype learning scenario testing to teacher and students. There are two results obtained by researchers: (1) teacher and student responses and (2) the guidelines for using PjBL scenario for teachers. The results of teacher responses are obtained from interviews, where the teacher strongly supports the development of this PjBL scenario. The partial results of interviews with teachers are as follows:

"..... later we will introduce it to our students, how to understand a concept, yes..... that understanding will lead to concrete things. So, it is not only limited to theory but also practices in the field".

Besides that, the response recapitulation results describe the students agree that PjBL: (1) is fun and not boring 100%, (2) increases curiosity about the market 100%, (3) becomes more active and enthusiasm in learning 100%, (4) increase self-confidence in asking questions and expressing opinions 95%, (5) being more appreciative of the opinions of others 100%, (6) increasing caring about the existence of a traditional market 100%, (7) increasing knowledge of demand and supply, markets, formation of market prices, types of markets, and the role of markets in the economy 100%, (8) facilitating linking day experiences with learning material 100%, (9) makes it easy to understand market concepts and market prices 100%, (10) providing learning that is meaningful for life today and in the future 100%, (11) improve skills in communicating with teachers, friends, and others 98%, (12) improve skills in organization (working together in groups) 98%, (13) improve skills in producing products (compiling research report and making video) 100% and (14) PjBL needs to be applied to other material 93%.

Discussion

Constructivist learning has characteristics such as critical thinking, motivation, student independence, feedback, dialogue, language, explanation, asking questions, learning through teaching, contextualization, experimentation, and problem-solving in the real world (Pritchard, 2009). The characteristics of constructive learning have been contained in the product of this study. Therefore, economic learning must be based on problem-solving. Given that almost none of our students are destined to become academic economists, then the best we can do is give them something of lasting value (Freedman and Blair, 2009). Troubled economic times, in addition to be a challenge, also provide opportunities to bring in current events and new examples (Schug dan Wood, 2011). In this study, the students can construct their knowledge of the market and market prices through their experience before and after implementing the project provided by the teacher. This is in accordance with the characteristics of learning in the national curriculum in 2013, where the learning process is student-centered.

The product in this study is PjBL scenario on economic subjects in senior high school class ten. The product development study in this study is based on the appropriate theoretical foundation. The results of the development of the PjBL scenario obtained that the students and teachers gave a positive response. The teachers want to apply in other economic material provided that it is in accordance with the learning objectives and conditions that support the occurrence of PjBL. According to the economics teacher, one of the weaknesses of PjBL is the time constraints, so not all economic materials can use PjBL. The students feel motivated in learning economics because they not only gain insight into the material but also they can develop their attitudes and skills, think critically and analytically in solving problems. This is in line with research by Xu & Liu (2010) which states that if compared with conventional courses, the PjBL approaches used in this study will be quite successful for providing students with more autonomy and creative learning environment as more constructivist compared to the perceptions that students have of a conventional lecture-based environment (Gijbels, et al: 2006).

Conclusion

The scenario of PjBL is in accordance with the characteristics of constructivist learning and the learning characteristics expected in the 2013 curriculum. The scenario of learning PjBL has the strengths and weaknesses that can be obtained during the implementation of scenario testing. Therefore, suggestions that can be taken into consideration in developing similar products, there are (1) teachers should pay attention to the allocation of time, because PjBL requires a short amount of time; (2) the material to be selected is adjusted to the characteristics of PjBL; (3) teachers should continue to provide individual practice/ non-project assignments; and (4) teachers should better recognize the characteristics of students, which can be used as a reference in forming heterogeneous study groups.

The implementation of PjBL has many positive impacts on the learning process. The projectbased implementation allows students to learn important life skills and instill confidence and desire to become independent lifelong learners (Wurdinger & Rudolph, 2009). Sang & Van (2016) found that most students have a positive perception of using PjBL as a teaching method and agree to learn using the same method in the future. It means that PjBL can continue to be applied in the future. This development product has been revised in accordance with expert advice, economic subject teachers, and students. For other researchers who want to develop this learning scenario further, it is better to develop learning scenarios for other materials on economic subjects or subjects other than economics. This study showed that developing PjBL scenario holds the potential to be an innovative learning approach in teaching and learning. So, it can be used as input for teachers in improving the teaching and learning process in order to produce appropriate economic learning.

References

- Anderson, T., & Shattuck, J. (2012). Design-Based Research: A Decade of Progress in Education Research? Educational Researcher, Vol. 41, No. 1, pp. 16–25, doi: 10.3102/0013189X11428813.
- Anderson, Lorin W., Krathwohl, David R. 2001. A Taxonomy for Learning, Teaching, and Assessing. New York: Addison Wesley Logman.
- Baker, E., McGaw, B. & Peterson P (Eds) 2007. Constructivism and Learning. International Encyclopaedia of Education 3rd Edition, Oxford: Elsevier.
- Bell, Stephanie. (2010). PjBL for the 21st Century: Skills for The Future. The Clearing House, 83: 39–43, doi: 10.1080/00098650903505415.
- Ellis, C., Sundmacher, M. & Varua, M.E. (2011). Responding to Student Perceptions of Education Quality in Economics and Accounting Courses. Australasian Journal of Economics Education 8(2): pp. 43-62.
- Freedman, C. & Blair, A. (2009). Silver Linings: Teaching Economics in Times of Crisis. Australasian Journal of Economics Education 6(1): pp. 1-20. s.
- Gagne, R.M & Briggs, L.J. (1979). Principles of Instructional Design. Second Edition. United States of America: Holt, Rinehart, and Winston.
- Gijbels, D., et.all. (2006). New Learning Environments and Constructivism: The Students' Perspective. Instructional Science Vol. 34: 213–226, doi: 10.1007/s11251-005-3347-z.
- Jen, E., Moon, S., & Samarapungavan, A. (2015). Using Design-Based Research in Gifted Education. Gifted Child Quarterly, Vol. 59(3) 190–200, doi: 10.1177/0016986215583871.
- Klein, J.L, et. al. (2009). PjBL: Inspiring Middle School Students to Engage in Deep and Active Learning. New York: NYC Department of Education, Division of Teaching and Learning of Curriculum, Standards, and Academic Engagement.
- Kokotsaki, D., Menzies, V., & Wiggins, A. (2016). PjBL: A Review of The Literature. Improving Schools, Vol. 19 (3) 267 –277. doi: 10.1177/1365480216659733 imp.sagepub.com.
- Maida, C.A. (2011). PjBL: A Critical Pedagogy for The Twenty-first Century. Policy Futures in Education, Vol. 9: 6, http://dx.doi.org/10.2304/pfie.2011.9.6.759.
- Maypole, J., & Davies, T.G. (2001). Students' Perceptions of Constructivist Learning in A Community College American History 11 Survey Course. Volume: 29 Issue: 2, page(s): 54-79. https://doi.org/10.1177/009155210102900205
- Mohammad Rob, Farhana Rob. (2018). Dilemma between Constructivism and Constructionism: Leading to the Development of a Teaching-Learning Framework for Student Engagement & Learning. Journal of International Education in Business, https://doi.org/10.1108/JIEB-01-2018-0002.
- Porcaro, D. (2011). Applying Constructivism in Instructivist Learning Cultures. Multicultural Education & Technology Journal, Vol. 5 Issue: 1, pp.39-54. https://doi.org/10.1108/17504971111121919.
- Pritchard, A. (2009). Ways of Learning, Learning Theories and Learning Styles in the Classroom. Second Edition. London: Routledge.

- Sang, V.N., & Van, N.T. (2016). Student Perception of Using PjBL (PjBL): A Case Study in Universiti Teknologi Malaysia (UTM), Fook et al. (eds.). 7th International Conference on University Learning and Teaching (InCULT 2014) Proceedings, doi: 10.1007/978-981-287-664-5_31.
- Schug Mark C., Wood William C. (Editor). (2011). Teaching Economics in Troubled Times Theory and Practice for Secondary Social Studies. New York: Routledge.
- Sultana, M., and Zaki, S. (2015). Proposing PjBL as An Alternative to Traditional ELT Pedagogy at Public Colleges in Pakistan. International Journal for Lesson and Learning Studies, Vol. 4, Issue: 2, pp. 155-173. https://doi.org/10.1108/IJLLS-09-2013-0049.
- Thomas, J.W. (2000). A Review of Research on PjBL. California: The Autodesk Foundation.
- Wurdinger, S. & Rudolph, J. (2009). A Different Type of Success: Teaching Important Life Skills through PjBL. Improving Schools, Vol. 12:2, doi: 10.1177/1365480209105576.
- Xu, Y., & Liu, W. A. (2010). PjBL Approach: A Case Study in China. Asia Pacific Educ. Rev. Vol. 11:363–370, doi: 10.1007/s12564-010-9093-1.
- Yeunglamko, L.K.C. (2011). From Discontent to Reform: Towards a Multidisciplinary Approach to The Study of Economics. Australasian Journal of Economics Education 8(1): pp. 69-86.