

# Student Worksheet Development Based on Contextual and Problem Solving on Microeconomic Theory Introductory Subjects

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## ABSTRACT

This research aims to develop student worksheet (SW) based on contextual and problem solving on microeconomic theory course. The development model on contextual and problem solving based teaching materials using 4-P model and adapted from 4-D development model. The curriculum which is used in this research is a curriculum for the majority of economic education bachelor year 2015. A student that used as a sample for the subject of this research is the student of economic education bachelor year 2015 that are 84 students and have been divided into two classes, there are PE 15A and PE 15B with 42 students in each class. Assessment result and revised student worksheet argued that the worksheet's task working direction is less clear, there's still have phenomena which impact an ambiguity. The revised SW result overall, validation by the subject matter experts obtained a score of 82,04% with a very decent interpret the action. If it was seen by the terms of each aspect, aspect with the highest score is the material aspect which obtained the score in 88%, and aspect with the lowest score is construction aspect. The limit module test is limited only for 40 students of economic education bachelor PE 15A to knowing their response after using the worksheet. The validation result has been corrected so that SW becomes better than before. The result of student's response to the contextual and problem solving-based worksheet showed a positive response on SW with the percentage value in 86,40%.

**Key words:** SW, Contextual, Problem Solving, Microeconomic Theory

## 1. INTRODUCTION

Developments in science and technology today is relatively rapid. These conditions provide the opportunity for all parties, including students, can obtain abundant information from various sources and place in the world easily and quickly. Students are also required to have the ability to collect, select and process information or knowledge effectively and efficiently. Thus absolutely necessary to be held a learning activity which is oriented into problem solving, the ability of critical thinking, logically, creatively and systematically.

The implementation of learning activity which teaches the student about their ability of critical thinking should be seen as a necessity. In this case, the mastery of critical thinking skills should not only be used for educational purposes but as a fundamental process in learning activities to provide opportunities for students to overcome the future which is still unclear (Cabrera, 1992). This is caused of some studies indicate that Indonesian students have less ability of critical thinking.

Priatna research results (2003) found that the reasoning ability junior high school students in Bandung city are still not satisfactory yet, which only reaches about 49% and 50% from the ideal score. According to Bloom (Duron, et al., 2006) reasoning ability includes basic thinking (basic thinking), critical thinking, and creative thinking (creative thinking).

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Research results of Daryono, et al (2011) to the mapping of senior high school's national exam results in Pamekasan and Sumenep regency showed that the national exam result of economics subjects is very low, especially in the questions which ask about economics phenomena and economics problem solving. The basic competence with the achievement level below 60% in the national exam in 2008-2010 are the basic competencies to identify the main problems of economics, describing the market; identify the exchange rate and balance of payments; and explain the concept of tariffs, quotas, export ban, imports ban, subsidies, premiums, price discrimination and dumping. Whereas application capabilities that are demanded in the national exam is a part of the cognitive domains that are lower than the ability of analysis, synthesis, and evaluation. All of those three capabilities are classified by Bloom (Duron, et al., 2006) in the critical thinking ability.

Based on research's result above, it can be understood that the student's critical thinking ability tends to be low. This is mostly caused by the students are not accustomed to thinking critically. Daryono, et. al (2011), found that the learning activities are carried out in the sample schools in Pamekasan and Sumenep regency are not accustoming the students to think critically. As a result, when the students move on to higher education level, their critical thinking ability will become their problem themselves as a college student.

Basic competency identifies the main economy problems and describes the market economy is a field of study in the microeconomic theory subjects. Both of those basic competencies are also the materials in microeconomic theory introductory course, where the college students often have some difficulties on it. Based on observations in the learning activities of microeconomic theory to the students of S1 Economic Education, students generally have the difficulty when they are exposed to resolve the case or matter that requires their skills on the application reasoning and analysis. Moreover, when the case or the matter being transformed into curve analysis.

Students generally did not realize that in doing their daily activities, they have applied economics. In this case, students are the economic subjects which in their daily life they are doing the economic transaction. As an economic subject, students are faced with various economic problems, such as scarcity, selection, purchase and sale transactions and others. Basically, the behavior of those students in making decisions about the available options, financial management and doing purchase and sale transaction are the form of microeconomic theory concept. Therefore, critical thinking ability is absolutely needed.

Relative to the problem of the lack of students critical thinking ability and the importance of critical thinking ability in the daily life, the efforts of learning process improvement can be reached by holding a learning activity which is clearly right and innovative in the learning of microeconomic theory subjects for college students is an important thing to do. In order to carry out the learning activity which can increase students critical thinking ability, is absolutely need the development of teaching materials that can be used to improve the quality process and learning outcomes, there is the development of teaching materials in the form of student worksheet based on contextual and problem-solving. Thus, this study aims to generate a student workbook based on contextual and problem solving. The student worksheet is expected to facilitate the students to learn independently, and critical analysis.

## **2. FINDING OF THEORIES**

### **2.1. Learning Theory Behaviorism**

Behaviorism theory argues that events around the person's environment will provide learning experiences for the person. The results which are expected from this study about behaviorism theory is to create objective, empirical, concrete and observable attitude. Therefore, manipulation of the learning environment plays an important role.

Behaviorism theory also assumes that teacher as a designer and developer of learning plays an important role. In this case, the teachers are required to understand the characteristics of their students, characteristic of the material, media, and learning facilities which are available and have a clear and measurable goal. By understanding each of these elements, the learning design that has been designed was expected to facilitate teachers in achieving the goal of the learning objectives.

The principles in the behavioristic learning are commonly used include: 1) active students so that the learning process can run smoothly, 2) learning materials are arranged logically so the students can learn easily, 3) each response must be given feedback so the students will know the truth of their response, 4) reinforcement for each correct students' response (Hartley & Davies 1978 in Warsito, 2008).

## 2.2. Constructivism Learning Theory

Constructivism theory provides a freedom learning environment the learning process. Knowledge is someone's cognitive construction of an object, experience or environment. Therefore, in the learning activities necessary to create an inviting environment or stimulate the development of the brain / cognitive students (Semiawan in Warsito, 2008).

ARCS (Attention, Relevance, Confidence, and Satisfaction) model is a model of learning motivation which can be used in learning constructivism. 1) attention or the attention of students can be encouraged for their curiosity, while their curiosity can be constructed with the use of learning strategies variety there are, use of media, and examples of linking concepts with real events. 2) relevance or relevance that shows the relationship between material and needs of students. Relevance can be constructed by explaining the goal of learning, benefits of the material, and giving examples / tasks. 3) confidence or confidence can be built with giving the learning experience, provide feedback, etc. 4) satisfaction (satisfaction) is an attempt to learning activities in accordance with their interests, characteristics, and needs of students.

## 2.3. Contextual learning

Contextual learning is learning that allows students to strengthen, expand, and apply their academic knowledge and skills in their daily life in order to solve the real-world problems (University of Washington, 2001). Contextual learning occurs when students apply and experience what is being taught with reference to real-world problems related to their roles and responsibilities as family members, citizens, students, and labor. (University of Washington, 2001).

According to Prakoso (2013) has been fond the relation of cognitive learning result in his research is on learning society phase in Contextual teaching and Learning (CTL), which is the problem-solving method and modeling phase inside of it. With the problem-solving method and modeling phase, the student becomes experience a meaningful learning, it means the student feels like experiencing the needs material for real. A meaningful learning for this student will bring a positive impact on the student's memory. The positive impact is student will have a strong memory of the material they have been received. With the strong memory of material, the students will have a great cognitive learning result.

CTL is a comprehensive system of education as a process that aims to help students see meaning in the material they are learning by relating it to the context of their daily lives, with the context of their personal environment, social, and cultural. (Johnson, 2002). In essence, contextual learning helps teachers to link the subject material with real life and motivate students to relate the knowledge they have acquired with their lives.

As according to The Washington State Consortium for Contextual Teaching and Learning (University of Washington, 2001), has identified seven key elements better known as the seven principles of Contextual Teaching and Learning (CTL), there are: a). Inquiry. b). Questioning. c). Constructivism. d). Learning Community. e). Authentic Assessment. f). Reflection. g). Modeling

## 2.4. Problem-Based Learning (PBL)

According to Slavin (in Ismailmuza, 2010), characteristics of PBL includes the submission of questions to the problem, focusing on the linkages between disciplines, Authentic investigation, cooperation, and products or works that must be exposed. Thus PBL requires that students have to solve the problems actively. To make the students act actively, it is necessary to design appropriate instructional materials taking into the knowledge level of students, so the teachers can provide help or intervention by clues (scaffolding) which direct students to find a solution.

Ibrahim (2005) states that the problem-based learning is based on the concept of some experts thought, namely; 1.) John Dewey, John Dewey argued that schools should reflect the greater community and the classroom is a laboratory to solve the real life problems. Dewey suggest the teachers to encourage their students to get involved in a project or problem oriented task and help them to investigate the issues of intellectual and social matters; 2.) Piaget, Piaget states that children have a curiosity and continually strive to understand their surrounding environment. This curiosity, to motivate them to actively build the look in their brains about how to overcome their environment; .3) Burner, Burner with learning discovery emphasizes on the importance of helping students to understanding dicipline, the importance ofstudents to get involved in the learning process , believing that the real lesson is going through personal discovery.

## 2.5. Student Worksheet (SW)

Learning activities by using a scientific approach emphasizes providing learning experiences through the stages of a scientific approach to problem solving. Scientific learning stages include observing stage, asking, trying, reasoning and communicating. Therefore, in the learning activities need a special media such as student worksheet (SW).

SW (Trianto, 2008) is a student guide that is used to doing problem-solving activities. SW contains tasks to be undertaken by students. The SW equipped with basic competencies to be achieved, working steps, and task descriptions are ordered (Depdiknas, 2004). Thus the SW is a media of problem-solving based learning activities so students can learn independently.

SW in the learning process plays an important role in learning activities, there are: a). Increase students' activity in the learning process. b). Helps the students develop and find the concept, based on data that obtained in experiments or activities through the literature study. c). Providing guidance for teachers and students in learning activities (Depdiknas, 2004).

The steps which are taken in developing the SW according to the Depdiknas (2004), there are: a). Curriculum analysis, which analyzes the competence to be achieved. b). Developing a students' needs map of SW, which determines Which competencies that require the development of student worksheet and determination of learning experience needed to achieve these competencies. c). Determining the student's worksheet title, which is based on the competencies that require student worksheet by adjusting the material substance and learning experience. d). Writing student worksheet which includes the formulation of basic competencies, assessment tools, materials and structure of the SW.

The structure of the SW includes the following components: 1.) Title; 2.) Directive learning; 3.) Competence to be achieved; 4.) Supporting information; 5.) The objectives and measures.

## 3. RESEARCH METHODS

### 3.1. Development Research Model

Development Model in teaching materials based on contextual and problem solving using a model 4-P is adapted from the development model 4-D by Thiagarajan in (Trianto, 2009: 189) consists of four stages

definition (define), stage design (design), stage of development (develop), and the deployment phase (disseminate) with a groove as follows:

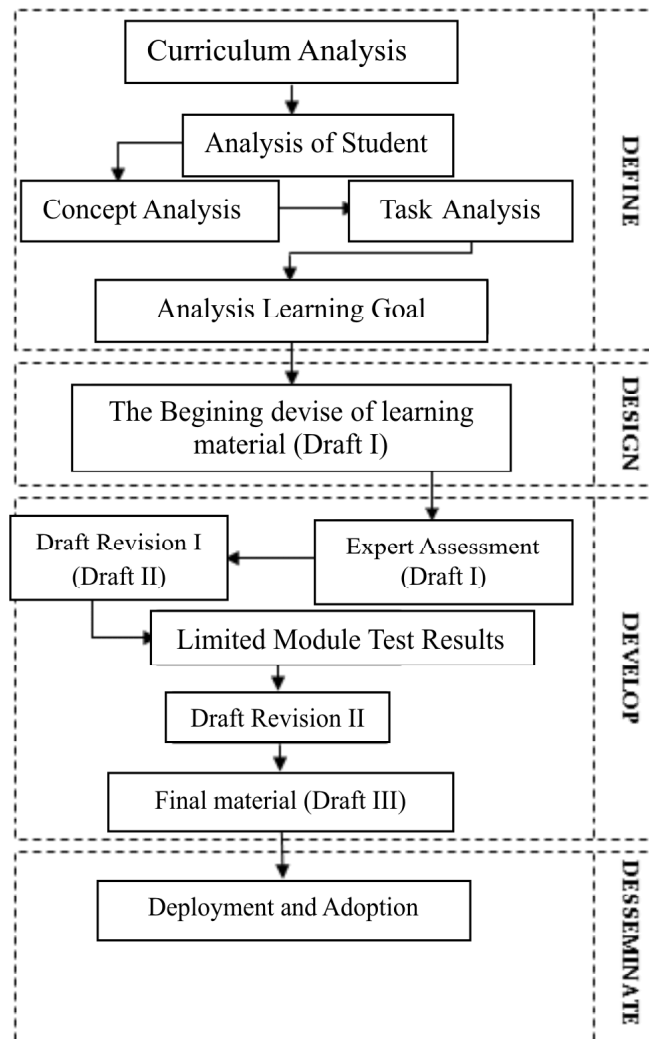


Figure 1: Model 4-D by Thiagarajan (Trianto, 2009)

### 3.2. Procedure Development Research.

This research development will produce teaching materials in the form of SW contextual-based and problem-solving. Based on the limits of the research problem, the procedure of development research will end up on development stage. The explanation for each stage of research and development that will be carried out as follows:

#### (a) Definition Phase

Defining done through analysis of the needs that are required before designing research includes analysis of curriculum development, student analysis, task analysis, analysis of the concept and analysis of learning goal.

#### (b) Stage Design

Designing teaching materials SW based on contextual and problem-solving on the markets materials, including the selection of teaching materials, preliminary design, preparation of teaching materials.

*(c) At this Development Stage*

Arrange and validate the teaching materials of SW based on contextual and problem solving which are still developed.

### 3.3. Collection Techniques and Collection Instrument Data

The data collection technique can be done through a technical review of documentation, observation, and questionnaire. The explanation of each data collection techniques are as follows:

**Table 1**  
**Explanation of Each Data Collection Techniques**

<i>Technique</i>	<i>Instrument</i>	<i>Outcomes Achieved</i>
Documentation study	Learning gains courses, Syllabus courses	The review of the curriculum
Observation	Observation sheet	Identify the characteristics of Students
Questionnaires	Instruments and pieces of expert validation study	Experts study and validation by the expert of subjects material

*Source:* Processed Data (2015)

### 3.4. Data analysis technique

Sheets study teaching materials and sheets were analyzed descriptively qualitative validation to provide an overview and suggestions that have been given related to a shortage of teaching materials.

## 4. RESULTS AND DISCUSSION

### 4.1. Research Result

#### 4.1.1. The Definition Phase (Define)

Definition phase aims to identify the curriculum, students, tasks and learning objectives. All of those components are used as a basis for planning student worksheets that will be developed. The results achieved in each of these components are as follows:

*(a) Curriculum Analysis*

The curriculum used in this study is the curriculum Bachelor of Economic Education Program in 2015. Economic Education Curriculum 2015 is a well-designed curriculum based on standards and national standards KKNi college or SNPT according to Ministry regulation No. 49 2014. Therefore the learning outcomes of study program the curriculum covers the four competencies, there are attitude competence, general competence, knowledge and specialized competencies.

Based on the curriculum above, graduates profile that department of Economic Education Bachelor wanted is economics educators. The formulation of the learning achievements of a course or program learning outcomes (PLO) for the sphere of competence of attitude and general competencies derived from Regulation No. 49 Year 2014 concerning SNPT, while the formulation of knowledge and special competence were developed, considered the results of the evaluation of existing curriculum, comparative studies, and tracer study. As for the PLO to the competence of knowledge can be seen in Table 2, While the PLO for the competence of specialist skills can be seen in Table 3.

The formulation of the PLO which is used in the development of teaching materials student worksheet is the PLO on the competence of knowledge that is Mastering the economic substance at the level of general and vocational secondary education based on science and technology. The formulation of the PLO

**Table 2**  
**PLO to The Competence of Knowledge**

<i>Description parameters</i>	<i>Learning Achievements Department (programme Learning Outcome / Plo)</i>
KNOWLEDGE	<p>Mastering the economic substance at the level of general and vocational secondary education based on science and technology.</p> <p>Mastering the concepts of mathematics, statistics, and logic as the basis for understanding the economy based on science and technology.</p> <p>Mastering the concept of research methodology in the field of economic education to provide an alternative problem-solving in the field of economic education.</p> <p>Mastering the concept of action research methodology and lesson study to provide an alternative learning problem-solving in the field of economics.</p> <p>Mastering the concepts and principles of the characteristics and development of students who applied in economics learning</p> <p>Mastering the learning theory and principles of effective economics learning.</p> <p>Mastering the concepts and principles of economic and scientific-pedagogical economic planning science and technology-based learning.</p> <p>Mastering the concepts and principles of economic and scientific-pedagogical economics for carrying out science and technology-based innovative learning.</p> <p>Mastering the concepts and pedagogical principles of the economic and scientific-based economy for the evaluation of science and technology.</p>

*Source:* Unesa Economic Education Curriculum (2015)

**Table 3**  
**Learning Achievement Program Economic Education Competence Skills In Special**

<i>Parameters Description</i>	<i>Learning Achievements Prodi (programme Learning Outcome / Plo)</i>
SPECIAL SKILLS	<p>Apply the concepts and principles of the characteristics and development of students that are applied in the economics learning.</p> <p>Applying the learning theory and principles of effective economy learning</p> <p>Apply the concepts and pedagogical principles of economic and economy to plan for science and technology-based learning.</p> <p>Apply the concepts and pedagogical principles of economic and scientific economies to implement the science and technology innovative learning-based science and technology.</p> <p>Apply the concepts and pedagogical principles of economic and economy to perform evaluations based on science and technology.</p> <p>Designing, implementing, and communicating economic research in the field of education that can be used to give instructions to select a variety of alternative problem solving in the field of economic education.</p> <p>Designing, implementing and communicating action research and lesson study to improve the quality of the economics learning and / or produce measures of development strategies economic learning strategies.</p> <p>Being able to take strategic decisions in the field of economic education based on the information and data that is relevant.</p> <p>Having the ability to plan and manage resources in the implementation of economics learning in the classroom, school and Institutions under its responsibility.</p> <p>Being able to effectively 3 communicate and socialize with students, friends, parents / guardians of students, and the community.</p> <p>Ability to communicate and adapt to the work environment and the community at local, national, regional and international.</p>

*Source:* Unesa Economic Education Curriculum (2015)

indicates that once the students carry out a series of learning activities, students are expected to have competence in the field of the scientific knowledge base of the economy.

In KKNi curriculum and SNPT, the PLO formula outlined in the formulation of the learning achievements of subjects that refer to study materials that have been developed. Based on the description of the background research problems, the subjects which will be developed, the subject material is Microeconomics theory introductory. The formulation of the learning achievements of the Microeconomics theory introductory course are as follows:

<p><b>Subject name: Microeconomic Theory Introductory</b>  <b>Thickness: 3 Credits</b>  <b>Course Prerequisites: -</b></p> <p><b>Achievement Learning Course:</b></p> <ul style="list-style-type: none"> <li>• Mastering the basic concepts of microeconomic theory including the main problems of economic, resource, economic actors, the market mechanism and structure of the market as the basic for the analysis of economic problems in daily life.</li> </ul>
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Figure 2: Learning Achievement of Microeconomic Theory Introductory Course

The learning achievement of that course reflects the expected learning outcomes will be mastered by the students after taking the Microeconomic Theory Introductory course for a certain period, such as one semester.

Based on the formulation of outcomes of learning courses and study materials in the curriculum map, the Microeconomic Theory Introductory course can be described as a subject to the scope of the basic concept study of microeconomic theory that including economic issues, economic activity, economic actors, demand and supply, the formation of pricing mechanism, elasticity, pricing policies by the government, and market structure.

Operationalization of the learning achievement in the course that explained into semester lesson plans (RPS). Therefore it is necessary to hold lesson plans for the rest of one semester or RPS. During the one semester, there are 16 times face to face class except for the final exam schedule. Thus the study materials included in the course description distributed in 16 face to face classes. On each face to face class needed a plan about final abilities that want to be achieved, the study materials, strategy, media and learning resources, experiential learning, and assessment. The learning plan for each face to face class on Microeconomic Theory Introductory course can be seen in the RPS, Appendix 1 below.

**Table 4**  
**The formulation of the Basic Competence to Content Market Mechanism**

<i>Meeting</i>	<i>The End of Competence</i>	<i>Indicator</i>
4-5	Applying the concept of supply and demand in daily life	<ol style="list-style-type: none"> <li>1. Distinguish demand and supply</li> <li>2. Explain the law of supply and demand</li> <li>3. Identify the factors that influence the demand and supply</li> <li>4. Analyze the movement and shifting demand and supply curves</li> </ol>
6-7	Applying the theory of market equilibrium in determining the price of a commodity	<ol style="list-style-type: none"> <li>1. Describe the mechanism of price formation in the market by using ceteris paribus assumption</li> <li>2. Determine the producer and consumer surplus</li> <li>3. Analyzing the market balance due to changes in demand and supply</li> </ol>



Within the restrictions of the problem research, material development activities limited to material market mechanisms, which include demand, supply, and market equilibrium. Based on the analysis of the depth and breadth material, the subject of market mechanisms requires 4 times face to face class. The depth and breadth of material can be seen from the end of competencies and indicators that want to be achieved in the learning activities. The final abilities and indicators that will be achieved can be seen in Table 4. Furthermore, the final competencies and indicators that have been developed will be a basic to reach the learning goal in the development of teaching materials.

### **(b) Analysis of Students**

Students who are analyzed are students who serve as research subjects. Given the curriculum used in this study is the curriculum of Economic Education Department year 2015, the students who serve as research subjects are students of Economic Education class, the year 2015.

Based on data from the Sub-Section Head of the Economics Faculty in Surabaya State University, the students of Economic Education class, the year 2015 numbered as 84 students and divided into two classes, there are Class PE 15A and Class PE15B, each of it has 42 students. In order to obtain accurate data on the characteristics of students in this development research, the students who are will be analyzed includes only one class, which is PE15A with 42 students. The profile of each student can be found in appendix 2.

Based on the analysis of student profiles, research subjects in study subjects Microeconomic Theory Introductory course was dominated by female students, with a percentage as 64% by the age range between 18-19 years old. The results of the data analysis of the national exam (NUN), shows that the academic ability of research subjects tend to be evenly or does not have significant differences. Thus the degree of heterogeneity of academic ability of research subjects is low.

Based on observations in the classroom, especially in the material of market mechanisms, most students do not have problems in understanding materials related to the competence of counting, such as calculating demand function material, supply function and calculate the equilibrium price.

In the other way, when entering the competence of identify factors affecting supply and demand, analyzing the movement and shift of the curve, analyzing the changes in the market balance due to changes in supply and demand, most students experiencing difficulties. The difficulty is caused by the students have not been accustomed yet to do the analytical thinking. Besides, examples of problems presented in textbooks are relatively difficult to understand. This is because the problem which is presented was never been happened or known to the students.

### **(c) Concept Analysis**

Concept analysis aims to define the concept which is needed by students in achieving final competencies and indicators. Therefore, the determination of the required concepts derived from the final competency and indicators that want to be achieved. Based on the final competencies and indicators that have been determined as attached in Table 4 above, the formulation of a concept or study materials that will be studied are as follows:

### **(d) Task analysis**

The task analysis according to Thiagarajan (in Trianto, 2009) aims to identify the main skills that will be studied and analyzed in a set of additional skills that may be required. The task analysis aims to ensure the thorough review of students tasks that will be presented in the student worksheet.

Determination of the task was directed to facilitate the students' learning which is based on contextual and problem solving like has been pointed out in the RPS. Based on the description of the subjects in RPS, lecture activities carried out by the discussion system, analysis of case studies, presentations and projects.

**Table 5**  
**Scope Concepts in Market Mechanism Material**

<i>Final Competence</i>	<i>Indicator</i>	<i>Study materials</i>
Applying the concept of supply and demand in the daily life	1. Distinguish demand and supply	Understanding demand and supply
	2. Explain the law of supply and demand	The law of demand and supply, the demand and supply curves
	3. Identify the factors that influence the demand and supply	The Factors which are affecting demand and supply
	4. Analyze the movement and shifting of demand and supply curves	The Movement and shifting of demand and supply curves
Applying the market equilibrium theory in determining price of a commodity	1. Describe the mechanism of price formation in the market by using ceteris paribus assumption	Equilibrium price formation mechanism, either through curve analysis and calculation the functions of demand and supply
	2. Determine the producer and consumer surplus	Producer surplus and consumer surplus
	3. Analyze the market balance due to changes in demand and supply	The mechanism of price formation on the condition of not ceteris paribus

*Source:* Unesa Economic Education Curriculum (2015)

The determination is based on the task of learning experiences planned. The learning experience is basically a scenario of how students be taught. In an effort to improve critical thinking ability, the students' learning experience must be planned correctly to give them the learning experience which can increase of analytical thinking ability, eg through case studies. While making the learning activities be meaningful, the case study that will be presented must be a case study whichever happen to the students or at least known by the students, so it is contextual. The shape of the developed learning experience can be seen in Table 5 below.

**Table 6**  
**Learning Experiences in Learning Materials Mechanism**

<i>Final Competence</i>	<i>Indicator</i>	<i>Learning experience</i>
Applying the concept of supply and demand in the daily life	1. Distinguish demand and supply	Reviewing the literature on differences in supply and demand
	2. Explain the law of supply and demand	Discussing the law of supply and demand through a literature review and case studies are presented
	3. Identify the factors that influence the demand and supply	Discussion of factors that affecting supply and demand through a literature review and case studies are presented, and present the results of discussions
	4. Analyze the movement and shifting the demand and supply curves	Reviewing the literature and conduct research on changes in supply and demand in certain commodities
Applying the theory of market equilibrium in determining the price of a commodity	1. Describe the mechanism of price formation in the market by using ceteris paribus assumption	Discuss the price formation mechanism of the ceteris paribus assumption through a literature review and case studies are presented, and present the results of discussions

*contd. table 6*

<i>Final Competence</i>	<i>Indicator</i>	<i>Learning experience</i>
	2. Determine the producer and consumer surplus	Discussing the determination of producer and consumer surplus through a literature review and case studies are presented, and present the results of discussions
	3. Analyzing the market balance due to changes in demand and supply	Discussing the market balance due to changes in supply and demand through a literature review and case studies are presented, and present the results of discussions

*Source:* Unesa Economic Education Curriculum (2015)

### ***(e) Analysis Learning Goal***

The learning goal reflects about competencies to be achieved by the students after a learning activity. The main goal in the development of teaching materials student worksheet is to improve students' critical thinking ability through a contextual approach.

Formulation of learning goal based on final competence, indicators that have been determined and the desired learning experience. In an effort to improve students' critical thinking ability, the verb in the formulation of the indicator is a verb that can improve critical thinking ability, which is a verb that is on the taxonomic level Bloom, at least it must be on the C3 level.

#### ***4.1.2. Planning Stage (Design)***

Planning or design stage is a stage for designing student worksheet. The developed student worksheet is student worksheets which are playing the role as guidelines for the students' work steps to understand the concept or material.

Student worksheet was developed using a contextual and problem-solving approach. The use of both approaches aims to create the critical thinking ability. Therefore, student worksheet was developed using a strategy case study analysis. The case studies which is used are sourced from economic phenomenon around students. The use of economic phenomenon around students as an ingredient in the formulation of the cases analyzed to reflect the learning model which is based on contextual.

The structure of student worksheet which is developed includes a component title, a competency that wants to be achieved, supporting information, work instructions, and a series of tasks to be solved by the students.

The title of student activities formulated in accordance with the learning goal and sub-study materials that must be mastered by the student. Allocation of the time required for the execution of each worksheet follows the allocation of learning time material in RPS.

Overall student worksheet developed will be united in a single unit of study materials and presented in book form. Thus the book of student worksheet is a series of student worksheet in study materials.

#### ***4.1.3. Development Stage***

The development phase aims to develop student worksheet based on contextual and problem solving. The development phase consists of three stages there are the review, validation, and limited testing.

*(a) Assessing Results and Revised Student Worksheet:* The initial design of SW (draft 1) submitted to the validator to do the review. The expert material Validator, namely Lucky Rachmawati, SE., M.Si, an

Economic Education Lecturers in UNESA. As for the criticism of subject material from the experts include: the working instruction in the worksheet is less clear, there is still contain phenomenon that can impacts ambiguous. Feedback which obtained from the review is used as improvements material on the first draft (SW 1) into the second draft (SW 2).

Criticism and suggestions are obtained from a review of the first draft served as the basis to make improvements on the draft 2. Document SW 2 which has been revised, it must be submitted again to the expert Validator to do the review. The results of the reviews on draft 2 SW, expert validator pointed out that the draft in document 1 has been repaired and declared fit to be validated. According to these results, the next step is to validate the SW by the validator.

(b) *Student Worksheet Validation Results:* Validation of SWs conducted by the validator which also plays a role as an expert reviewer of the material, namely Lucky Rachmawati, SE., M.Si. Overall the score validation by material expert obtained a score of 82.04% with a very decent interpretation. If the terms of each aspect, aspect with the highest score is a material aspect with a score of 88% and the aspects that get a lower score is construction aspect.

(c) *Limited Module Test Results:* After validation performed by the validator material experts, then conducted trials are limited to only 40 students of Economic Education Class PE 15A to know about the response of the students after using the student worksheet.

The students' response result to the contextual and problem solving based student worksheet showed a positive response to the SW and the percentage value of 86.40%.

## 4.2. Discussion

### 4.2.1. Defining Phase (Define)

The analysis conducted at the stage of defining include curriculum analysis, analysis of students, concept analysis, task analysis and the analysis of learning goal. Those fifth analyses are conducted to identify the necessary requirements before entering the planning stage.

Analysis of the curriculum is the process of outlining the achievements of the learning program of study until it becomes an indicator. The groove in the elaboration of curriculum analysis can be seen in Figure 2 below.

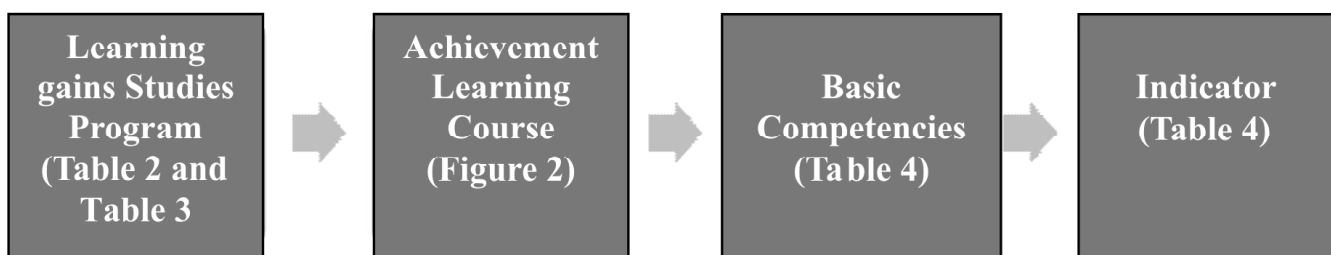
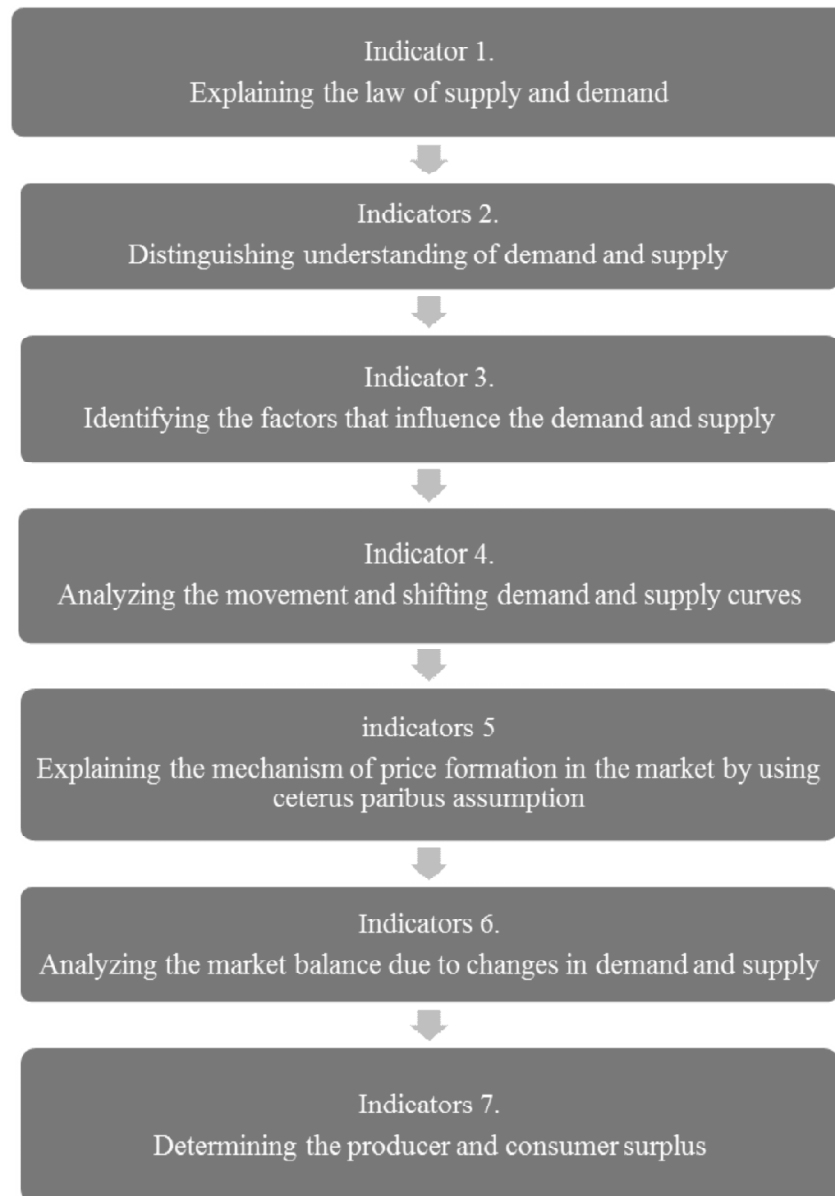


Figure 3: Curriculum Analysis Mechanism

Formulation of indicators that have been arranged as presented in Table 4, arranged systematically based on the relationship between indicators. The preparation of these indicators is to determine the position indicators, ranging from the initial indicator until the final indicators that must be mastered by the student. Preparation of indicators position was determined from the indicator's characteristic. Indicators that are prerequisites will be given first to achieve a high indicator. The position indicator in the material market mechanism can be seen in Figure 4 below.



**Figure 4: Indicators Position in Education**

Based on Figure 4 that has been mentioned above, the composition of the indicators formulation that will be accomplished by using a hierarchical structure. This is because of the final indicator will only be done if students have mastered the prerequisite indicator. The first indicator that must be mastered by the students is to explain the law of demand and supply. Once students understand the law of supply and demand (indicator 1), the students will be able to distinguish the definition of demand, the quantity of demanded goods, supply, and the quantity of offered goods (indicator 2). Furthermore, the students will study about factors that influence demand and supply both in *ceteris paribus* conditions which is required in the law of demand and supply or when the demand and supply were not met in a *ceteris paribus* condition. (Indicator 3). Once the students have mastered the third indicator, then the students are expected to be able to analyze the movement and shifting of demand and supply curves as a result of changes in factors that affecting supply and demand (indicator 4).

After the students have mastered the concepts of supply and demand, then the students will learn the concept of equilibrium price. The indicators that will be achieved is to explain the mechanism of price formation in the market by using *ceteris paribus* assumption (indicator 5). Furthermore, students are expected

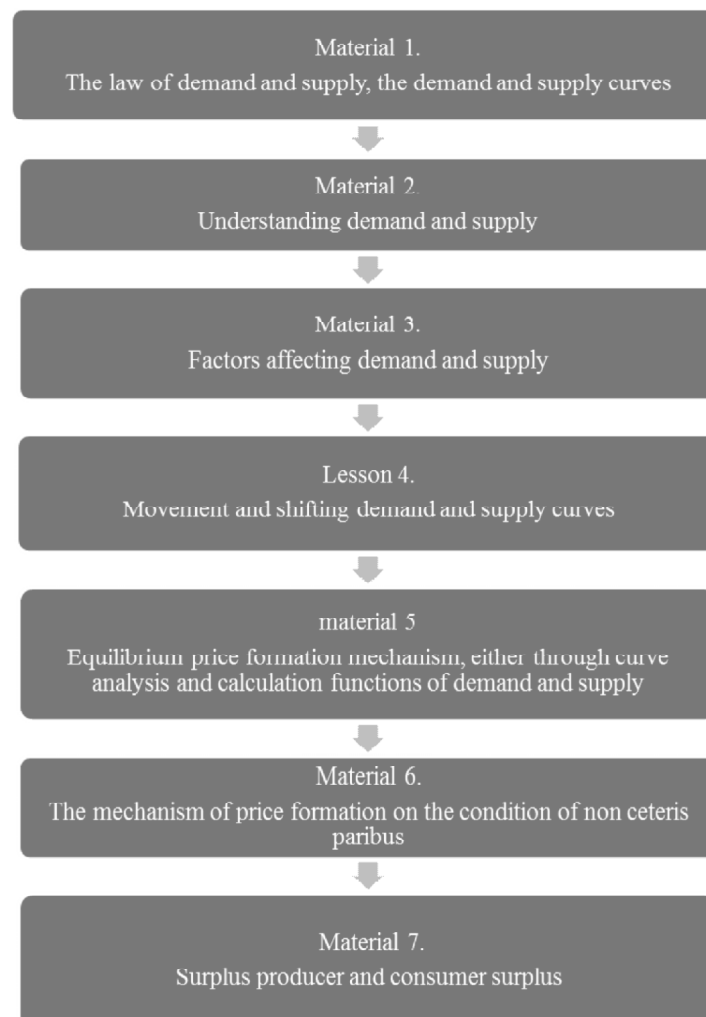
to analyze the market balance due to changes in supply and demand when conditions of non ceterus paribus. The final indicator that must be mastered by the students is define surplus producers and consumers.

The analysis results of the position composition indicator play a role as the basic in preparing map concept. The position composition of map concept reflects the series number of material substance that will be delivered to students to achieve the predetermined indicators.

Based on the analysis concept's result in table 6, The scope of market mechanism material including demand, supply and price balance material. The demand and supply material consists of the law of demand and supply sub-legal material, the definition of demand and supply, demand and supply curves, understanding supply and demand, and the factors that affecting demand and supply.

The material of the equilibrium price includes the sub-material of equilibrium price formation mechanisms on ceteris paribus condition either by using an approach curve analysis and calculation functions of supply and demand, price formation mechanism of the balance in non ceteris paribus conditions, surplus producer, and consumer.

The supply and demand materials are equal, it means that the material did not have a relationship with each other. Thus, in their both presentation, those can be presented alternately or in the same time. While in the of price equilibrium material requires of demand and supply material. Thus the price equilibrium material will be presented if the students have mastered the demand and supply material. The sequence of the material that will be given to the material concept of market mechanism can be seen in Figure 5.



**Figure 5: Systematics Materials Market Mechanism**

The goal in learning activities is to improve students' critical thinking ability. In order to achieve this goal, the learning experience scenario that will be given to students is using contextual and problem-solving approach. Thus the material substance that will be presented had packaged by using a contextual and problem-solving approach based in the form of student worksheet.

#### 4.2.2. Planning Stage (Design)

Planning or design stage is a stage for designing SW. The developed SW is SW which play a role as a basic for the students' work steps to understand the concept or material. Based on the analysis concept's result in the defining stage, the SW that will be developed consists of five worksheets. The fifth worksheet has the same structure, which consists of the title of the worksheet, translation of competence that wants to be achieved, supporting information, work instructions, and a series of tasks to be solved by the students.

The worksheets title are included in each worksheet must be suited to the substance of the material that presented in the worksheet. The title of SW developed among others: Request SW, the SW supply, SW Price Balance, Market Interaction SW and SW Consumer Surplus and Producer Surplus.

In each worksheet will be explained the competencies that must be achieved. Competence to be achieved is encapsulated in the indicator. Formulation for each worksheet can be seen in Table 7 below.

**Table 7**  
**The formulation of indicators on Student Worksheet**

<i>Title Worksheet</i>	<i>Indicator</i>
SW Demand	<ol style="list-style-type: none"> <li>1. Explain the law of demand</li> <li>2. Explain the definition of demand</li> <li>3. Identify the factors that affecting demand</li> <li>4. Analyze the movement and shifting in the demand curve</li> </ol>
SW Supply	<ol style="list-style-type: none"> <li>1. Explain the law of supply</li> <li>2. Explain the definition of supply</li> <li>3. Identify the factors that affecting supply</li> <li>4. Analyze the movement and shifting in the supply curve</li> </ol>
SW Price balance	Explaining the mechanism of price formation in the market by using the ceteris paribus assumption
SW Market interaction	Analyzing the market balance due to changes in demand and supply
SW Consumer Surplus and Producer Surplus	Determining the producer and consumer surplus

*Source:* Proccesed data (2015)

A student worksheet is also supported by the supporting information that contains a short summary of the learning material which had contained in each worksheet. The first worksheet is a worksheet to the mastering of the concept of demand. At the demand worksheet, students will learn about the concept of the law of demand, factors that affecting demand, the demand curve, the concept of movement and shifting the demand curve, and the calculation of the demand function.

The second worksheet is a worksheet to mastering the supply concept. In the student worksheet, students will study about the concept of the law of supply, factors that affecting supply, the supply curve, the concept of movement and shifting the supply curve, and the calculation of the supply function.

The third worksheet is worksheet study about equilibrium price to mastering the mechanism of market price formation on the ceteris paribus condition. This worksheet includes the sub-material of pricing balance in ceteris paribus condition either through curve analysis approach or the calculation functions of demand and supply.

The fourth worksheets are worksheets that explain about market's work interaction to mastering the concept of the market price formation mechanism of non ceteris paribus conditions. This worksheet includes the sub-material of pricing balance in non ceteris paribus condition due to shifting demand and supply curves.

The fifth worksheet is a worksheet that explains about consumer surplus and producer surplus for mastering the concept of consumer surplus and producer surplus. The substance in this worksheet includes the determination of producer and consumer surplus in the market equilibrium curve and the calculation of producer and consumer surplus.

The fifth SW were developed using a contextual and problem-solving approach. Therefore a series of tasks that exist on a worksheet presented through case studies of an economic phenomenon which founded around the students. As a reference in the execution of worksheets, each worksheet will be equipped with working instructions.

### ***3.2.3. Development Stage***

The development stage consists of three stages namely the review, validation, and limited testing. The discussion for each phase are as follows:

*(a) Assessing Results and Student Worksheet Revised:* The review of an early draft of the SW (draft 1) by expert validator Lucky Rachmawati, SE., M.Si includes the work instructions in the worksheet is less clear, there still exists a phenomenon that impacts ambiguous.

The work instruction in the worksheet rated less clear, especially for SW market interaction. Instructions that contained in the worksheet are less providing information about what activities that should be undertaken by students. Therefore repairs had done on the work instruction of SW market interaction.

Feedback about the persistence of the phenomenon that contained ambiguous impact on demand SW and SW supply in the first part. Those problems were solved by adding the assumptions on which phenomenon are presented.

*(b) Results Validation of SW:* Validation of SWs conducted by the validator which also plays a role as an expert reviewer of the material is Lucky Rachmawati, SE., M.Si. Overall the score validation by an expert of subject material obtained a score of 82.04% with a very decent interpretation. If the terms of each aspect, the aspect with the highest score is a material aspect with a score of 88% and the aspects that get lower scores are aspects of construction. Material aspect received the highest score for the material presented in accordance with the indicators, capable of making students had critical thinking, reflecting the contextual approach. Whereas aspect of construction gets lower scores for the presentation of the phenomenon, the case is still considered to need improvement.

*(c) Limited Module Test Results:* After validation performed by the expert material validator, then conducted trials are limited to 40 students of Economic Education Class PE 15A to know the response of the students after using the student worksheet.

The students' response to the SW which is based on contextual and problem solving reflects that MFI is very suitable to be used in learning activities. This is because students who were responded positively to the MFI and the percentage value of 86.40%.

## **5. CONCLUSIONS AND SUGGESTION**

### **5.1. Conclusion**

The results of research and discussion in the previous chapter can be summarized as follows:



- a) In the definition, phase obtains the instructional analysis and map concept that have been adapted to the position of the indicator that will be achieved.
- b) At the designing stage obtained five student worksheets. The structure of each worksheet consisting of the title of the worksheet, the translation of competence that must be achieved, supporting information, work instructions and a series of tasks that must be done by the students. The series of tasks that exist on a worksheet presented through case studies of economic phenomenon around the students who are equipped with manual as a reference work in progress worksheet.
- c) At the development stage obtained from the validator about work instruction of the worksheet is less clear, there still exists a phenomenon that impacts ambiguous and has been fixed. While validation overall score of 82.04% with a very decent interpretation. The results of student responses to the worksheet student are positively associated with the percentage value of 86.40%.

## 5.2. Suggestion

Based on the limited issue in the study, expected in the future the next research are:

- a) Validate on the student worksheet are not only on material validation but also validation on aspects of language, learning aspects and feasibility aspects layout student worksheet
- b) Coverage of the material in the development of student worksheet should be extended to the substance of other material which were contained in the RPS

## REFERENCES

- [1] Cabrera, G.A. (1992). A Framework for Evaluating the Teaching of Critical Thinking. Dalam R.N Cassel (ed). *Education*. 113 (1). 59-63.
- [2] Daryono, Dhiah Fitriyati, Muchlis, Suyatno, Abdul Haris, and A. Qosim, (2011), *Pemetaan dan Pengembangan Mutu Pendidikan Sekolah Menengah Atas di Kabupaten Pamekasan dan Sumenep*. Surabaya: Reseach Report.
- [3] Depdiknas, (2004), *Pedoman LKS Dan Skenario Pembelajaran Sekolah Menengah Atas*. Jakarta: Direktorat Jendral Pendidikan Dasar Dan Menengah, Direktorat Pendidikan Menengah Umum
- [4] Duron, R., Barbara Limbach, and Wendy Waugh, (2006), Critical Thinking Framework for Any Discipline. *International Journal of Teaching and Learning in Higher Education*, 17, 160-166.
- [5] Ibrahim, Muslimin and Nur, Muhammad, (2005). *Pembelajaran Berdasarkan Masalah*. Surabaya: Pusat Sains dan Matematika Sekolah Universitas Negeri Surabaya.
- [6] Ismailmuza, Dasa, (2010), Pengaruh Pembelajaran Berbasis Masalah dengan Strategi Konflik Kognitif terhadap Kemampuan Berpikir Kritis Matematis dan Sikap Siswa SMP. *Jurnal Pendidikan Matematika Volume*, 4(1), 1-9.
- [7] Johnson, Elaine B, (2002). *Contextual Teaching and Learning (CTL)*, California: Corwin Press Inc
- [8] Prakoso, Albrian Fiky, (2013), Penerapan *Contextual Teaching And Learning (CTL)* dengan Metode *Problem Solving* dalam Meningkatkan Hasil Belajar Kajian Kebutuhan Manusia, *Jurnal Pendidikan Ekonomi*, 6(1), 27-47.
- [9] Priatna, N, (2003), *Kemampuan Penalaran dan Pemahaman Matematika Siswa Kelas III SLTP di Kota Bandung*. Disertasi. Bandung: SPs UPI
- [10] Trianto. 2008. *Mendesain Model Pembelajaran Kontekstual (Contextual Teaching and Learning) di Kelas*, Jakarta: Cerdas Pustaka Publisher.
- [11] Trianto, (2009), *Mendesain Model Pembelajaran Inovatif-Progresif*. Jakarta: Prenada Media
- [12] Unesa, Economic Education Curriculum, (2015), *Buku Pedoman Akademik*. Surabaya: Unesa University Press.
- [13] University of Washington, College of Education, (2001). *Training for Indonesian Education Team In Contextual Teaching and Learning*. Seatle, Washington: USA
- [14] Warsito, Bambang, (2008), *Teknologi Pembelajaran: Landasan & Aplikasinya*. Jakarta: Rineka Cipta.