Four Phases to Construct Problem-Based Learning Instruction Materials

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Abstract   Constructivism has resulted in   the development of a wide variety of learning   environments in the last decade of 20th century. One of the most ideal and   most popular areas that implement the theory is the problem -based learning (PBL). PBL emphasizes a "real-world" approach to learning: a student -centered process that is both constructive and collaborative.   It involves the use of complex, real -world prob lems as the stimulus and framework for learning.   PBL also based on the promise that students will be motivated to "want to know" and solve the problem posed because it is presented in a context that simulates real situations.   As an effective learning env ironment for improving students ' critical problem solving and self -directed learning skills, the PBL has been successful applied in many disciplines especially in higher education.

The rapid changes in technology, information and economy call for the new   competences such as the skills of critical thinking, problem solving, decision making, team working, etc. Thus, how to equip our students with the requirements for graduate competence has become the most crucial   responsibility in engineering education.   This article is trying to address a procedure that simeple and easy to use for PBL lessons planning. By way of   inductions, experiments and revisions,   the author s concluded and generalized   some strategies and proposed a process of "four phases " to construct the PBL instructional materials. Illustrated examples seem to proof it   could be applied to achieve   the results we expected.   The procedure to construct PBL instructional materials are: Phase 1: Selecting unit titles; Phase 2: Designing acts; Phase 3: Det ermining learning objectives; Phase 4: Linking contents.

Index Terms   Engineering Education, Instructional materials, Instructional method,   Problem -Based Learning

INTRODUCTION

With the advent of the knowledge economy, innovation, speed, and change are emerging as new parameters of competition.

School education alone is no longer sufficient. Therefore, in order to keep up with the pace of the constantly evolving society, each and every individual person must develop the ability of self-learning [1]. However, the key to effective learning and to successfully assisting students to achieve dynamic learning effects does not lie in the accumulation of knowledge itself. Instead, what we need is a set of procedure that allows us to guide and transform knowledge into innovation capability needed for generation of profits. In other words, it is the ability of using the power of knowledge that we should help our students develop [2]. The knowledge economy features short knowledge half-life, speed, application, and innovation. From the standpoint of education, traditional instructions can no longer cope with the demand of this ever-changing world. It is therefore important to embark on major reforms on instruction mode and learning method in order to develop diverse capabilities among students [3]. Among various available instructional methodologies and techniques, thematic instruction, which includes topic-based and problem-based learning, if incorporated with collaborative learning, should be able to best realize the spirit of a constructivist instruction [4].

Problem-Based Learning (PBL) is an efficient way to acquire new knowledge. It combines aspects from the learning styles approach and from cooperative learning and focuses on teamwork, problem-solving skills and self-directive studies as well as reveals the importance of interdisciplinary knowledge for the understanding of problems [5]. Besides, as students have to work partly in groups, PBL supports the acquisition of social skills and the reflection and development of attitudes. During the process of PBL, they have to organize their learning process because the instructor does not determine what the students have to do. Consequently, students working with PBL are better equipped for the critical skills of "learning how to learn". In other words, PBL is an effective tool to help students develop critical and creative thinking skills and enhance students' innovation capabilities through the process of problem solving [6].

Obviously, in the era of knowledge and information based, the focus of education should be on the cultivation of students' self-learning and innovation abilities. In addition to core knowledge acquisition, knowledge transformation and application, and knowledge innovation, when developing curricula and instructional materials, the cultivation of important intelligences such as learning attitude, learning method, learning interest, and learning habit, as well as the development of interpersonal skills and personalities should all be taken into account. That is to say instructional materials must be diversified and newer pedagogies like PBL must be incorporated into the instruction.

There is a familiar cyclic process of PBL shown Figure 1. The first and most important step is to fine the problems related to the teaching subject because the problems or tasks provide the basis for learning process. To work on these problems, a particular method called "seven-step approach" was proposed and applied [7].
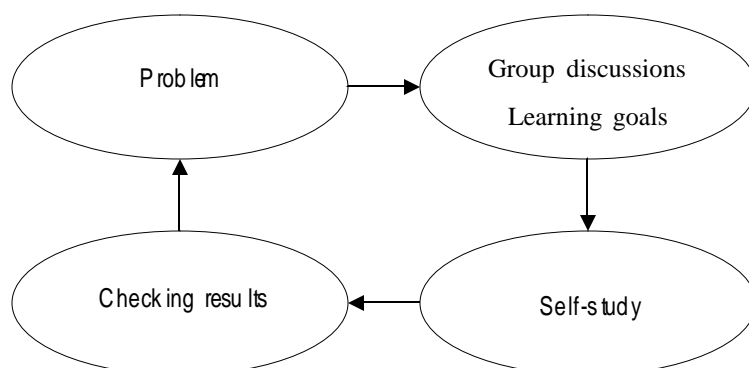
FIGURE 1

THE CYCLIC OF PROCESS OF PBL

The seven-step approach is a systematic method to deal with a problem by following steps:

Step 1: Clarifying whatever is not clear in the task. The group defines and specifies terms and concepts that are unclear.

Step 2: Defining the problem. The group decides about which phenomena need to be cleared. The task can also be divided into sub-problems.

Step 3: Analyzing the problem. The brainstorming technique is applied to find out what group members already know about the problem.

Step 4: Listi ng possible explanations. The result from the brainstorming session are sorted out and critically surveyed. It becomes clear what still has to be studied.

Step 5: Formulating learning goals. Open questions that arose during the problem analysis need to be answered. This leads to the formulation of learning goals and guides the individual learning process.

Step 6: Looking for additional information outside the group. Based on the learning goals the students have to gather specific information concerning their problem. They can use various sources of information to get the relevant information.

Step 7: Reporting to the tutorial group. Back in the group students discuss the results of their self-study activities. This step corrects deficiencies in knowledge, clears ambiguities and deepens the knowledge of the subject by an active exchange of information.

However, from the step 3, it is hard to realize haw to analyze a problem and break it into meaningful topics, then transform it and construct the instructional materials related to it. Based on previous works [3,8] and by way of inductions, experiments and revisions, the authors have generalized and proposed a four phases simple and easy to use process for constructing PBL instructional materials These phases and respective strategies described as follow.

PHASES TO CONSTRUCT PBL INSTRUCTIONAL MATERIALS

PHASE 1: SELECTING UNIT TITLES

The most two important features of PBL are to cultivate students' active learning ability and to help them identify problems through brainstorming. Hence the curricula must be designed so that it can help students to learn actively if a PBL process is to be carried out smoothly. To ensure a smooth PBL process, it is important to make sure both the instructional material and the lesson plan include motivating dialogues and engaging contexts to increase students' interest and motivation to learn. In other words, when constructing PBL instructional materials, teachers must focus on how to facilitate active learning in students.

It is very important to select the appropriate unit titles based on the problems which is attractting students with a great deal of attention. The unit titles of a defined problem should be one that students can easily relate to their experience or

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one that embodies a common problem that most students have met. The issues involved in each unit title should to capable to catch students' attention and describe the frequent problems occuring in daily life especially favorable with a touch of urgency, danger, and task orientation. For example: "What do we do when we see smoke coming out of a socket or plug?", "What can we do when milk gets sour?", "Does river straightening affect the natural environment?". In general, some guidance for defining problems and selecting appropriate unit titles is:

Problems in daily life: What can I do if I have a flat tire, if the chain on my bicycle is loosened, if the car engine starts to overheat, if the printer has a paper jam, if blurry pictures come out from the printer or else.

Social issues: Domestic violence, school violence, how students can relieve their schoolwork pressure, how to handle depression, suicide behaviour, jailbreak, juvenile sub-culture, and so on..

Curricular related issues: Environment education, gender education, life education, information education,etc.

Relevant tasks: Plan how to showcase a successful project such as how to establish a new club.

PHASE 2: DESIGNING ACTS

To divide the selected unit into different acts could be through following strategies like the use of concept map to describe the core knowledge; the application of problem solving skills after having acquired the ability to employ the core knowledge; and the formulation of development plans for core knowledge expansion and enhancment. To design acts according to selected unit titles is depending on the size and requirement of each unit. Mostly, each unit could be divided into three to five acts with different episodes or contexts. The naming of different acts should follow a hierarchical order and the titles should cover sufficient breadth and depth. Although it is the most difficult step to do that, nevertheless, the authors have proposed [8] a thinking flow for act title selection. Figure 2 shown the thinking flow that transformed some of the example unit titles into a top-down hierarchy linked by different titles of acts with the emphasis placed on core knowledge acquisition, unit comprehension and application, and knowledge expansion and enhancement respectively, as listed in Table 1.

Take a three-act unit for an example. In Act 1, the focus should be on core knowledge acquisition—telling of, writing down, or drawing out a concept map; Act 2 should highlight comprehension and application of the unit content—proposing problem-solving methods and steps, or working out a problem directly; and Act 3 should be designed for knowledge expansion and enhancement—proposing solutions for development, drawing up a development plan.
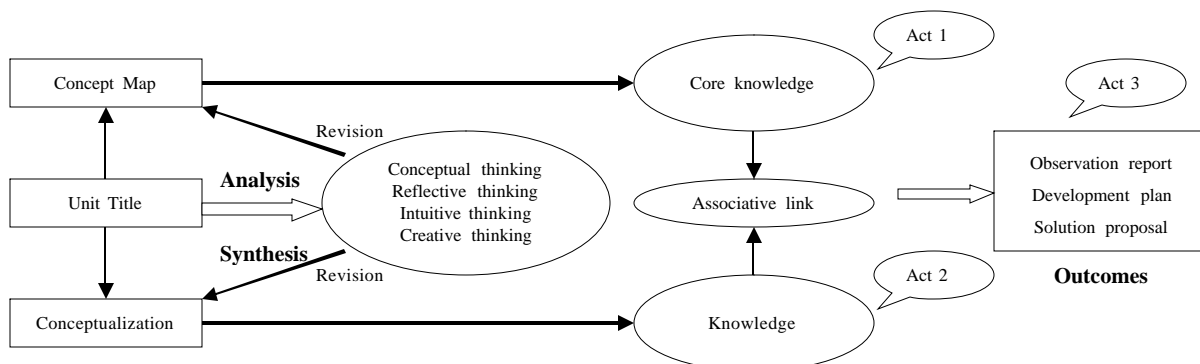
FIGURE 2

A THINKING FLOW FOR STRUCTURING MODULAR CURRICULAR

Modules	Unit Titles	Act Titles
Oxidation of Chemical Substances	1.What can we do when food gets mildewed?	How do we tell if the food is mildewed and what are the causes of mildew in food?
		How should we deal with mildewed food?
		How do we prevent food from mildewing?
	2.What can we do when milk gets sour?	How do we identify the factors that cause milk to turn sour?
		For health reasons, how can we make sure the milk we drink is fresh?
		Comparing the sour taste of sour milk with that of a regular yogurt.
	3.What can we do when Mom's necklace gets blackened?	How do we identify the factors that cause a necklace to turn black?
		How should we deal with a blackened necklace?
		How should we select delicate silver accessories?
	4.What can we do when there are mushrooms growing out of the wall?	Why would mushrooms grow on the wall?
		Why are there more and more mushrooms growing on the wall?
		How can we prevent little mushrooms from bourgeoning again?
Small Water Drop's Big Accomplishment	1.What can we do when Taiwan faces shortage of water supply?	How do we identify the primary causes of water shortages in Taiwan?
		How can we prevent and resolve the water shortage problem in Taiwan?
		How should we compile a Taiwan water shortage evaluation report?
	2.Why do we need to build water reservoirs?	How do we tell if a reservoir has stored sufficient amount of water?
		Can building reservoirs alone meet the household water demand?
		How can we increase water storage capacity of a reservoir?
	3.Does river straightening affect the natural environment?	Why do we need to straighten a river?
		What are the environmental impacts of river straightening?
		How do we compile an environment impact assessment report for a river straightening project?

TABLE 1

UNIT AND ACT TITLES OF A PBL INSTRUCTIONAL PALN

Module	Unit Titles	Act Titles
Electricity and the Living Environment	1.What do we do when we see smoke coming out of a socket or plug?	How do we identify the causes of a smoking socket or plug?
		How should we deal with a smoking socket or plug?
		How can we better ensure safe use of electrical appliances around home?
	2.What do we do when an electrical appliance catches fire?	What do we do when an electric appliance causes a fire?
		How do we identify the factors that cause an electrical appliance to catch fire?
		How can we prevent fire incidents caused by misuse of electrical appliance?
	3.Why can an electromagnetic stove cook?	How does an electromagnetic stove generate heat?
		Do all types of pots work with electromagnetic stove?
		How do we select an electromagnetic stove that is beneficial to the human body?
	4.Why does wrap film when torn off tend to adhere to itself?	Why does wrap film adhere to itself?
		What are the places in life where this phenomenon applies?
		How can we apply this principle more effectively in our daily life?

TABLE 1

UNIT AND ACT TITLES OF A PBL INSTRUCTIONAL PALN (CONT.)

PHASE 3: DETERMINING LEARNING OBJECTIVES

When implementing a PBL lesson, the learning objectives of each act is in fact decided by the students according to their own interest, as opposed to being predetermined by the teacher as is with conventional instruction. Considering the background differences of individual guiding teachers, and for fear that the key points may be missed out during the teaching process or the students may digress from the theme during discussion, a new section that outlines the learning objectives for each act is added into the "Teachers' Handbook of Lesson Plan" for reference.

The learning contents for each act is normally divided into the following three parts according to students' level of abilities:

Must learn—the core know that all students must know;

Should learn—content that students are supposed to know; and

Nice to learn—content that it would be good for students to know.

The relationship between these three parts is shown in the figure 3 below.

"a" represents what students must learn

"b" represents what student should learn

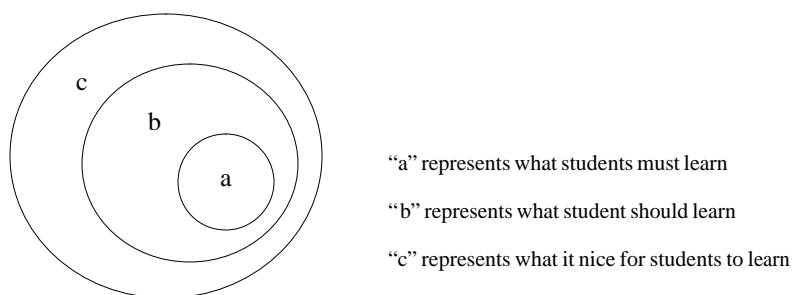"c" represents what it nice for students to learn

FIGURE 3

LEVELS OF LEARNING CONTENT

To ensure a thorough evaluation and careful selection of the various learning objects to be included in each level, the important task of the choice of learning objectives should be better left to the hands of those Curriculum Development Committee officers, who should decide through discussion a correct weighting to each of the various learning objectives under consideration according to their importance, demand, and possible obstacles involved or through voting [9].

The learning objectives must be specific and include A, B, C, and D four statements to describe the specific behavioral objectives [10].

A (**Audience**)—"Who" expected to carry out the behavior? This can be omitted if it's the students who execute the behaviour.

B (**Behavior**)—"Actual behaviors" needed to achieve the objectives, e.g. to list, to write, to tell, to select, to distinguish, to design, to use, to operate, to complete, etc.

C (**Condition**)—"Relevant conditions" required to complete or achieve the behavior, e.g. conditions provided by the teacher, the instructions in the manual, a given circumstance, error messages displayed on the computer screen, etc.

D (**Degree**)—"Level" or "Standard" successfully achieved by the behavior, e.g. accuracy, deployment and installation plan, problem solution, disassembling operation, etc.

Using the unit title "What do we do when food gets mildewed?" for instance, the specific learning objectives could be:

Can <u>accurately</u> <u>from the appearance of food</u> <u>identify</u> the <u>characteristics of food mildewing</u>
     D   **C**   **B**   **C**

Can <u>accurately</u> <u>analyze and itemize</u> the <u>fungus types of mildew and their influence on our body</u>.
     D   **B**   **C**

According to above rules and strategies, the specific learning objectives for the acts of "What do we do when we see smoke coming out of a socket or plug?" and "What can we do when milk gets sour?" have been determined and shown in Table 2, Table 3.

Unit	Act Titles		Specific Learning Objectives
What do we do when we see smoke coming out of a socket or plug?	Act 1	How do we identify the causes of a smoking socket or plug?	**Must learn** 1. Can accurately use the proper terms to describe the causes of a smoking socket or plug and to name the various parts that are malfunctioning. 2. Can tell the causes of a smoking socket of plug.
			Should learn 1. Can tell the voltage difference between 110V and 220V power supplies. 2. Can give examples of short circuit, broken circuit, and normal circuit.
			Nice to learn 1. Can summarize and list out possible causes of a smoking socket or plug under various circumstances.
	Act 2	How should we deal with a smoking socket or plug?	**Must learn** 1. Can tell the ways to find out the part that causes the socket or plug to smoke. 2. Can use a multi electric meter to identify circuit shortage, breakage, or normality. 3. Can use a multi electric meter to measure DC and AC voltages.
			Should learn 1. Can use a multi electric meter to test the part of socket or plug causing the smoke. 2. Can say the correct operation procedures for a no-fuse switch after circuit jump.
			Nice to learn 1. Can use a multi electric meter to test malfunctions and parts that require basic repair services. 2. Can produce a brief report on how to prevent a second plug or socket smoking event from reoccurrence. 3. Can summarize the various types, specifications, and functions of the sockets and plugs available on the market through tabulation.
	Act 3	How can we better ensure safe use of electrical appliances around home?	**Must learn** 1. Can name the unit and symbols of electricity used in various home appliances. 2. Can compare the power consumptions of various home appliances. 3. Can name the symbols on home wiring drawing.
			Should learn 1. Can summarize and list the power consumption amounts of various home appliances. 2. Can describe how the wiring is like at home from the home wiring drawing.
			Nice to learn 1. Can draw a simple wiring chart to explain how to better ensure safety through reallocating electricity use of various home appliances. 2. Can produce a safety checklist for home wiring testing and electric appliance use.

TABLE 2

SPECIFIC LEARNING OBJECTIVES FOR THE ACTS OF "WHAT DO WE DO WHEN WE SEE SMOKE COMING OUT OF A SOCKET OR PLUG?" UNIT

Unit	Act Titles		Specific Learning Objectives	
What can we do when milk gets sour?	Act 1	How do we identify the factors that cause milk to turn sour?	Must learn	1. Can accurately tell where the milk can be bought. 2. Can accurately tell how the milk we drink is produced. 3. Can accurately write down the various types of milk. 4. Can write down the circumstances under which the milk can get sour.
			Should learn	1. Can summarize and analyze under what circumstances milk turns sour and its possible causes. 2. How to make use of unwanted sour milk.
			Nice to learn	1. Can tell or draw the changes taking place with a sealed fresh milk bottle/carton in room temperature on a summer day. 2. Can analyze the hazards to human body of the bacteria generated from sour milk. 3. Can identify the differences between fresh milk and reconstituted milk obtained by milk powder.
	Act 2	For health reasons, how can we make sure the milk we drink is fresh?	Must learn	1. Can raise correct methods for keeping milk fresh. 2. Can name the nutrients contained in milk.
			Should learn	1. Can identify whether the current milk is fresh. 2. Can tell the advantages and disadvantages to our health of frequent milk consumption. 3. Can list the calorie content of various milk types.
			Nice to learn	1. Can write down things that require special attention with fresh milk preservation. 2. Can tell if the property of milk is changed after adding other ingredients to the milk. 3. Can list the uses of milk in daily life.
	Act 3	Comparing the sour taste of sour milk with that of a regular yogurt.	Must learn	1. Can say how yogurt is produced. 2. Can name those yogurt products on the market.
			Should learn	1. Can identify the difference in the soreness between sour milk and yogurt. 2. Can name the pros and cons of fermented milk to our body.
			Nice to learn	1. Can write down the types of acidophilus commonly used by domestic manufacturers and draw the shapes of the various types of acidophilus. 2. Can make a list to compare the nutrients contained in fresh milk and in yogurt.

TABLE 3

SPECIFIC LEARNING OBJECTIVES FOR THE ACTS OF "WHAT CAN WE DO WHEN MILK GETS SOUR?" UNIT

PHASE 4: LINKING CONTENTS

In phase 2 we have divided a unit into three to five acts, with each having a different focus. This phase, we use the keywords and transitions to connect the contents of each act. A more detailed explanation in terms of how to link the contents of each act is given below.

Act 1: Emphasizes core knowledge acquisition

To identify possible causes of the problem, summarize the drivers behind the problem, and link in series the conceptual knowledge acquired using a concept map or other tools. In other words, in describing the context of the act, the teacher should use keywords or transitions as linkage to engage students and boost their interest in learning on the one hand, and to stimulate students to apply divergent thinking skills in problem discovering, raising, and listing through brainstorming on the other, thereby achieving the goal of active learning. For example:

> *Thomas has long made it a habit to have a glass of milk at breakfast. On the Dragon Boat Festival however, he got up ten minutes late and was washing his face, brushing his teeth, and rushing to get everything done so that he could go to the library to study. He jammed the sandwich Mother just prepared into his book bag, and grabbed up the glass of milk, ready to gulp it down. But as soon as the first squirt of milk entered his mouth, Thomas felt a sour taste. He spit it up and saw chunky stuff in it. He rushed over to the bathroom and madly rinsed out his mouth. Mother was coming out of her room, so Thomas grouched about the spoiled milk as he continued to rinse his mouth. Mother said to her feeling all puzzled, "I bought it yesterday. How can it get sour already?" And then she turned to Thomas, adding "Oh, don't throw the milk away. Just leave it there." Let's say you are all good friends of Thomas' discuss among yourselves how you should do about the sour milk.*

Description:

The keywords of this act include **"milk"** and **"Dragon Boat Festival"**, which can be used to guide students to diverge their thinking into other types of milk.

The transitions of this act include **"saw chunky stuff in it (milk)"**, which can be associated with other fungus infections; and **"don't throw it (milk) away, just leave it there"**, which can be associated with filing of a customer complaint or legal charges, or issues relating to environmental protection and waste recycling.

Act 2: Emphasizes knowledge comprehension and application

There are two ways to describe the learning objectives in Act 2. First is refer to the exploration of interdisciplinary problems—why or why does it not, what the influence would be.... and the second is relate to the problem solving—how to deal with or what to do.

1. Interdisciplinary problem exploration

Based on the conceptual knowledge acquired from the first act, the teacher can arrange a further brainstorming activity to allow students to explore the problem presented under the theme through cause determination and analysis, characteristics identification through experiments, and solution development from diverse angles of view. Therefore, in

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describing the context of the act, the teacher should use keywords or transitions as linkage to engage students and boost their interest in learning on the one hand, and to stimulate them to apply divergent thinking skills in problem discovering and listing through brainstorming on the other, thereby achieving the goal of active learning.   For example:

Thomas' father does morning exercises every day in the park.   He came home that day after the exercise and noticed immediately as he arrived home that Thomas wasn't looking very good.   Mother explained, "He just gulped do   wn some sour milk."   Father replied, "Indeed milk is nutritional and has   many uses . But you always bought milk from your office and then took a bus home.   You see on such hot days, exposing fresh milk to outdoor temperature can easily cause bacteria or virus contamination.   "Spoiled milk can be harmful to our body   ."   Thomas took the opportunity and said, "If you get it from the convenient store nearby, it can save y   ou a lot of trouble and you can make sure that the milk is fresh   . Besides, slim milk helps me stay fit."   Let's say you are all good friends of Thomas' discuss among yourselves how to ensure freshness of milk and stay healthy.

Description:

The keywords of this act include **"on such hot days"** and **"skim milk helps stay fit"**, which can be used to guide students to diverge their thinking into topics relating to how milk contributes to health.

The transitions of this act include **"milk is nutritional and has many uses"**, which can be associated with other uses of milk including as a cosmetic substitute or cooking material.

2. Problem solving

Based on the conceptual knowledge acquired from the first act, the teacher can arrange a further brainstorming activity to allow students to try solving the problem presented under the theme through raising possible remedies or figuring out how to remove/handle difficulties by themselves.   In other words, in describing the context of the act, the teacher should use keywords or transitions as linkage to engage students and boost their interest in learning on the one hand, and to stimulate students to apply divergent thinking skills in problem solving through brainstorming on the other, thereby achieving the goal of active learning.   For example:

Thomas' father came home from work on   e day and saw Thomas sitting in front of a burned toaster and looking very lost. Although they had discuss ed about the causes of socket smoking at school, Thomas still had no idea about what to do when it did happen . Father told him that he could use a multi electric meter to find out which component had broken down and was in need of replacement. The father a nd s on then started to dis assemble t he toaster in order to fix it. As they carried out the repair work, Father reminded him to pay more attention in the future when using electrical appliances, so as to avoid similar incidents from occurring again. Let's say you are all good friends of Thomas' discuss among yourselves how to ensure safe uses of electrical appliances   around home .

 Description:

The keywords of this act include **"multi electric meter"** and **"disassemble"**, which can be used to guide students to

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diverge their thinking into the use of tools to solve problems.

The transactions of this act include **"to pay more attention in the future when using electrical appliances, so as to avoid similar incidents from occurring again"**, which can be associated with the avoidance of improper operations that may lead to circuit shortages.

Act 3: Emphasizes knowledge expansion and enhancement—proposing development plans

Based on the conceptual knowledge acquired from the first act and the problem solving experiences from the second act, the teacher can arrange a further brainstorming activity to connect the previous two acts and to allow students to propose development plans or solutions, and raise issues with high levels of similarity with the current one for comparison and analysis in order to help students expand and increase their knowledge. In other words, in describing the context of the act, the teacher should use keywords or transitions as linkage to engage students and boost their interest in learning on the one hand, and to stimulate students to apply divergent thinking skills in problem solving through brainstorming on the other, thereby achieving the goal of active learning. For example:

> *Thomas and his mother brought the sour milk back to the supermarket near his mother's office and inquired about the reason why the milk bought yesterday was already spoiled. A colleague of Thomas' mother's happened to be shopping near that supermarket personnel Thomas and his mother was inquiring. "The milk I had this morning was sour too! But it was not spoiled." The colleague said. Let's say you are all good friends of Thomas' discuss among yourselves what you think the supermarket personne l would explain to Thomas' mother about the differences in the views between Thomas' mother and her colleague.*

Description:

The keywords of this act include **"milk"**, which can be used to guide students to diverge their thinking into other types of milk.

The transitions of this act include **"the milk I had was sour too! But it was not spoiled,"** which can be associated with yogurt.

CONCLUSION

The ultimate goal of learning is not about finding the best answer to a question but rather to train students to learn through the process of problem solving, i.e. thinking steps, research topics, development plans etc. Two decades ago, Combs, A.W. in his work of "What the future demands of education" mentioned that: "Tomorrow's citizens must be problem solvers, persons able to make good choices, to create solutions on the spot. Effective problem solving is learned by confronting events, defining problems, puzzling with them, experimenting, trying, searching for effective solutions" [11]. In the era of knowledge-based and information driven, how to encourage students to learn through curriculum design, flexible use of teaching materials and diversified instructions is more important issue than ever that deserves thinking in

education settings nowaday.

PBL is an important and effective method among the diverse instructional approaches available today that can help students to develop both self-learning and collaborative learning abilities. It promotes student-centered learning and allows students to embark on active learning through exploring into a broad area of knowledge. The features of PBL are teamwork learning, problem-solving and self-directive studying. By way of PBL, it shows students the importance of interdisciplinary knowledge for the understanding of problems and they have to organize their learning process in groups. It also supports the acquisition of social skills and the reflection and development of attitudes.

This article have demonstrated a procedure of four phases about how to construct PBL curricular. By means of selecting unit titles, designing acts, determining learning objectives, and linking contents, authors have illustrated many instructional materials which is constructed in accordance with these strategies respective. It is believed that PBL can is an effective and exact tool authors had coustructed many curricular As an alternative pedagogy, PBL is recommended for wider promotion and application to foster students' skills of "learning to learn".

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