

Using PBL Method to Enhance Learning Process



Prof Ts. Dr. Faaizah Shahbodin

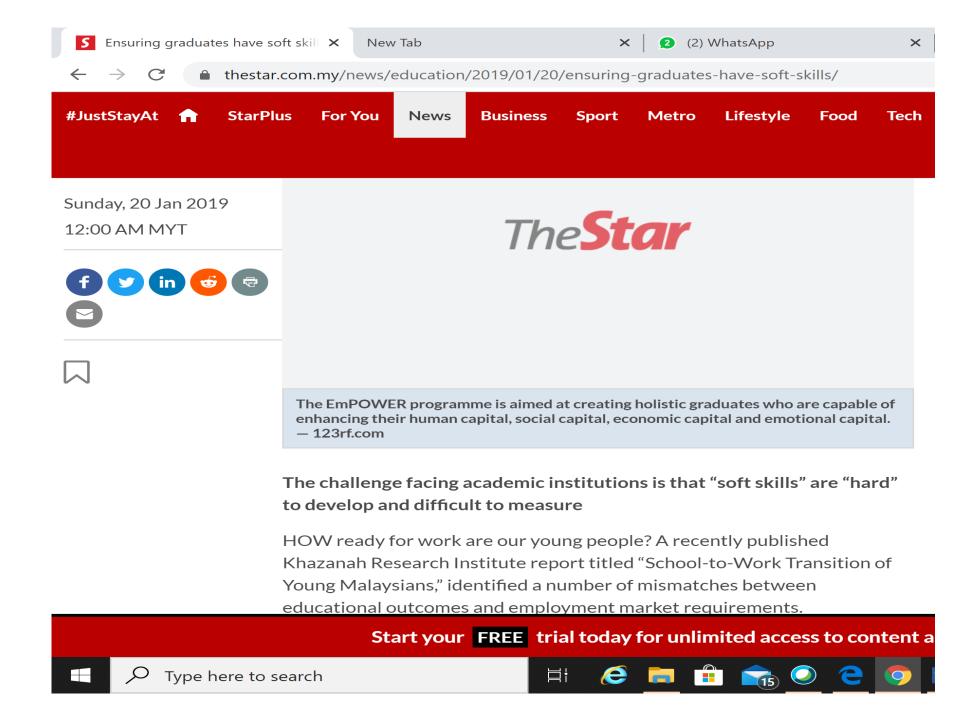


Contents

- Introduction
- 5 W + 1H of PBL
- Problem scenarios crafting
- PBL tools
- Sample work done
- Conclusion
- Q&A

Introduction

- Issues related to the achievement of students in higher learning institutions in Malaysia have always been of concerned to the society/industry/KPT
- Reports on students' passive attitudes, lack of motivation, weakness in problem analysis and lack of communication skills have prompted certain authorities to recommend PBL approach in T&L.
- UTeM (CAES) OBE –Active Learning and SCL, PBL.
- Extension PhD, Short grant, Masters project, PSM





Growing

- 1 Analytical thinking and innovation
- 2 Active learning and learning strategies
- 3 Creativity, originality and initiative
- 4 Technology design and programming
- 5 Critical thinking and analysis
- 6 Complex problem-solving
- 7 Leadership and social influence
- 8 Emotional intelligence
- 9 Reasoning, problem-solving and ideation
- 10 Systems analysis and evaluation



Declining

- 1 Manual dexterity, endurance and precision
- 2 Memory, verbal, auditory and spatial abilities
- 3 Management of financial, material resources
- 4 Technology installation and maintenance
- 5 Reading, writing, math and active listening
- 6 Management of personnel
- 7 Quality control and safety awareness
- 8 Coordination and time management
- 9 Visual, auditory and speech abilities
- 10 Technology use, monitoring and control

Various Teaching Method

Experimental

Learnercentered Teachercentered

Didactic

Content-Based Processbased

Project based

Blended learning

PBL

Online Course Quality Indicators



Eight indicators

These indicators were developed based on quantitative and qualitative cross-instutitional studies conducted by the DETA Research Center



Design

- specific and measurable learning objectives
- alignment to assessments and learning activities
- authentic, real-world experiences



Organization

- well-organized course
- easy to navigate
- logical and consistent format
- alignment between topics and subtopics
- · manageable sections



Support

- manage students expectations
- provide orientation to the course (purpose, format, and getting started)
- Illustrate alignment of objectives, assessments, and activities
- clear instructions and directions
- description of grading and assessment plan



Clarity

- reduce barriers to learning
- provide clarity in the expectations of student activity (participation and performance)
- include explanations, descriptions, standards, requirements, quidelines, and context



Instructor -

- express interest in student learning
- actively participate in online discussions
- facilitate learning and peer interaction
- expand students' thoughts and knowledge
- provide new prompts and additional content
- provide timely and detailed feedback on assessments and student inquiries



Peer -Interaction

- facilitate active learning through frequent and ongoing peer involvement and meaningful collaborative work
- provide opportunities and technologies available for students to learn from each others



Content -

- strategically enhance the student interaction with accessible and interactive content (preferably OER)
- support dialogue, critical reflection and analysis, and real-world applications of the content
- provide materials that are current, rich, and sufficient in breadth and depth
- identify important topics and provide context



Richness

 provide richness in learning materials and activities, support and instructions, instructor interactions, and tools and media Q:

List down what is the factors that you think affect your teaching method

Factors affecting choice of method

 Learning needs of students – need variety to ensure learning is not restrictive

But also affected by......

- professional knowledge/Content expert
- beliefs, views and assumptions as well as professional knowledge, personal confidence and competence.
- environment in which you work Work from home?
- personal qualities/passionate

Surface Approach

- Intention to complete the task, memorise information, make no distinction between ideas and existing knowledge and to treat the task as externally imposed (Fry et. al, 2009)
- Rote learning is typical surface approach
- Superficial levels of cognitive processing
- Facts are learnt without meaningful framework

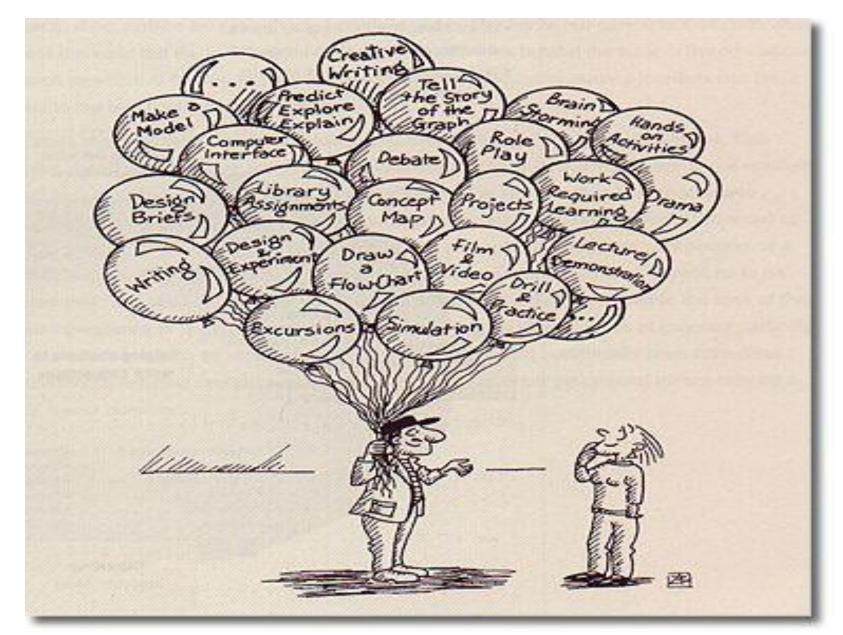
Deep Approach

- Intention to understand and seek meaning, leading students attempt to relate concepts to existing understanding and to each other, to distinguish between new ideas and existing knowledge, and to critically evaluate and determine key themes and concepts
- Gain maximum meaning from learners' studying and involve high levels of cognitive processing
- Possible to achieve through student-focused approach

Adult Learning Theory (Knowles, 1984)

- There are five principles:
- a) As a person matures, he or she becomes more selfdirected- SDL/Andragogy
- b) Adults have accumulated experiences that can be a rich resource of learning
- c) Adults become ready to learn when they have a need to know something
- d) Adults tend to be less subject centered than children, they are increasingly problem centered
- e) For adults more potent motivators are internal

Choice of Methods – T,A,M,T



Definition

PBL is a teaching method in which complex real-world problems are used as the vehicle to promote student learning of concepts and principles as opposed to direct presentation of facts and concepts. (Duch et al, 2001).

PBL is a "complex and dynamic" process integrated by stakeholders (academic staff and students), structures (curricula and facilities) and frameworks (content and evaluation) (Guerra et al, 2017, p.219).

PBL - Malaysia

no	university	field
1	UNIMAS /UKM	Medical
2	UIA	Law
3	UTHM/ UTM	Engineering
4	UM	IT / Mathematics
5	USM	Physic
6	MMU	Multimedia
7	UTeM	ICT & Engineering

PBL - Singapore, Australia, UK, US

What counts as PBL?

5 characteristics of PBL

- 1. Start with a problem scenarios
- 2. Authentic and ill-structed
- 3. Knowledge contructions
- 4. Students have responsibility for learning
- 5. Small groups 3-5

PBL vs Conventional (Elaine, 2016)

	Characteristics of PBL	Traditional teaching method
Lecturer or	cognitive constructivist	knowledge provider
educator is the	2. curriculum designer	2. curriculum designer
	3. learning coordinator	
Problem can	1. be initiative for learning	examine individual learning
	2. reflect real life situation	performance in the test
	3. motivate the learning	2. be used as homework or
	4. encourage critical thinking	assignment
	5. integrate learning knowledge	
Students are	1. main players in small group	1. class partakers
	2. cooperative learners	2. individual learners
	3. active learners	3. passive auditors
	4. self-directed learners	4. lecture note followers
	5. knowledge creators	5. knowledge receivers
	6. critical thinkers	6. memorial style learners
Tutors are	1. learning facilitators	1. tutorial providers
	2. cognitive coaches	2. Q&A respondents
	3. PBL discussion moderators	

PBL begins with a problem

 Group analysis of what needs to be known

- Individual research
- Developing a solution
- Reflection on process & learning

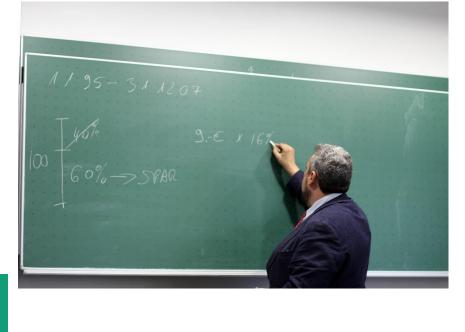
5/7/2020

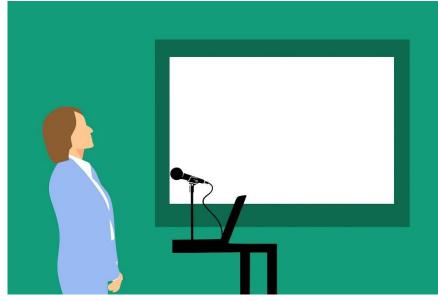
PBL involves group work

- Collaboration has benefits
 Even for silent students
- Students need group skills
 Medium-sized (3-5) groups work best
- Lecturers need facilitation skills Expertise in subject may be less important

Traditional

The teacher...





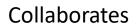
Source: pixabay

PBL

The student...



Discovers





The Process of PBL

- Problem (to triggers learning)
- Students specify:
 - what they know about the problem,
 - what they don't know
 - what they need to find out
- Student work together in teams to do research
- Presentation of findings
- Assessment & Reflection

5/7/2020

TIPS – ask ourselves

- •What open-ended questions can be asked? What learning issues will be identified?
- •How will the problem be structured? Check LO
- •How long will the problem be? How many class periods will it take to complete?
- •Will students be given information in subsequent pages as they work through the problem? Scaffolding process.
- •What resources will the students need?
- •What end product will the students produce at the completion of the problem? Report/forum/ sketch/ network design etc.



EXAMPLES OF PROBLEM SCENARIO







TALENT MANAGEMENT FOR EXCELLENCE (TaME) SERIES 2020

Module 9. Future of Human Resources Activities

16 April, 2020 Online Learning

Faaizah Shahbodin (UTeM) Noor Maizura Mohamad Noor (UMT)



PROBLEM SCENARIO

BusinessWeek

THE MAN WHO INVENTED

MANAGEMENT

Why Peer Drucker's
selss still matter

"Organization doesn't really accomplish anything. Plans don't accomplish anything, either. Theories of management don't much matter. Endeavours succeed or fail because of the *people* involved.

Only by attracting the best people will you accomplish great deeds"

"The chances are good that up to 66% of your company's hiring decisions will prove to be mistakes in the first twelve months"

Peter Drucker, The Management Guru



You found out that HR in your organization facing a problem in conducting succession planning especially when it comes to smell and groom a good talent. Based on your reading it seems that talent management is very important as highlighted by Mr.Colin Powell and Peter Drucker.

Hence, with the concerns of losing good talent, AKEPT has sought your advice on how to go about this matter. As an expert in Data analytics tools, you and your team plan to formulate a simple dashboard for talent management. You need to consider the strategic decision on how to align talent planning, resources, organization vision and mission as well as strategizing the management of academics, and R&D activities.

Aktiviti: FILA TABLE

Based on the problem scenario given, prepare a FILA (Facts, Ideas, Learning Issues, Action plan) table below to complete the whole learning activities for Module 9

FACTS	IDEAS	LEARNING ISSUES	ACTION PLAN

FACTS

Maklumat yang anda faham dan dapat secara terus dari scenario masalah yang diberi. Cth: yang diwarnakan

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FACTS	DESCRIPTIONS
1.	i) Succession Planning
2.	ii) Fgfdbfdgfdg
3.	iii) Dgfgsgsdsd
4.	iv) Gdsgsdgsdg
5.	v) sgdsgsgsg

IDEAS

Apa idea yang kita dapat berdasarkan fakta yang telah dikenal pasti. Senaraikan semua possibility daripada senario

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IDEAS	DESCRIPTIONS
1.	i) Technology could be uses as a solution
2.	ii)Fdgdfgdfgdf
3.	iii)Dfghdfhdfhf
4.	iv)Fdfdsfdsgds
5.	v)Fdsgsdgds

LEARNING ISSUES

Apa isu yang penting kita perlu tahu untuk selesaikan masalah. Hints 1H5W questions

You found out that HR in your organization facing a problem in conducting succession planning especially when it comes to smell and groom a good talent. Based on your reading it seems that talent management is very important as highlighted by Mr.Colin Powell and Peter Drucker.

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Learning Issues	How	, what, why, where, which, who
1.	i)	What is the data analytic tools available
2.	ii)	Gefhgfhfg
3.	iii)	Gfdgdfgfdgfd
4.	iv)	Gfdgfdgfd
5.	v)	Gfgfdgdfgdf

ACTIONS

Actions – Apa tindakan yang kita perlu lakukan untuk selesaikan masalah yang diberikan.

You found out that HR in your organization facing a problem in conducting succession planning especially when it comes to smell and groom a good talent. Based on your reading it seems that talent management is very important as highlighted by Mr.Colin Powell and Peter Drucker.

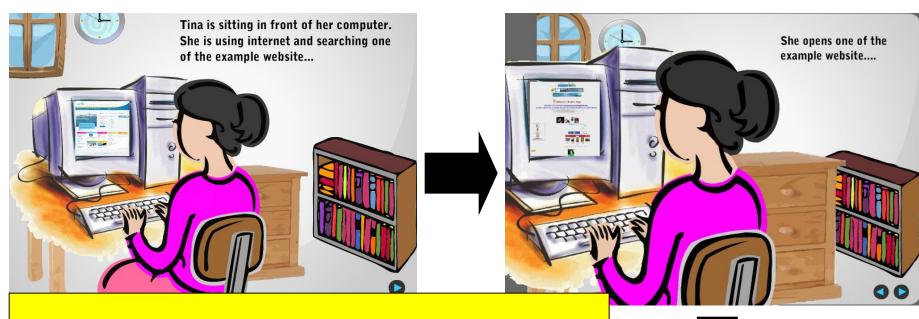
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i



HCI at FTMK:Problem Scenario -Trigger





The problem scenario presented using 2D animation.







PBLASSESS Problem Based Learning

X

Student will be presented with a problem scenario. They have to define and analyze the problem

PROBLEM SCENARIO

The School of Informatics aims to redesign its website and commissions you to advise them on several matters.

The School wants to know website design process. Inform the School what each component of the design process means and help define the activities for each component for this website redesign project.

The School plans to redesign the website. Please advise the School in using multimedia elements on the website such as audio, video, image, graphics, text and animation.

As a multimedia designer, how would you explain this phenomena and what would be your suggestions to the School?



Problem Based Learning







PROBLEM SCENARIO

LECTURER MODULE

PROBLEM SOLVING

GLOSSARY

Main modules

in PBLAssess

EXPLORATION

ASSESSMENT

FORUM

LECTURER MODULE







USER INTERFACE COMPONENTS



MENTAL MODEL



3D INTERFACES

MODULE OUTCOME

PROGRAMME OUTCOME

After finish the lecturer module, you are free to test your understanding. You can click button TEST.



Problem Based Learning







PROBLEM SCENARIO

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PROGRAMME OUTCOME

FILA Activity

Facts, Idea, Learning Issues, Action Plan

Here you need to develop a FILA table. The process has 4 steps.

Step 1

Student has to identify the Facts (**F**) from the problem scenario. List what you can understand from the scenario.

Step 2

Student has to identify the Ideas (I) from the problem scenario. List all the possibilities related to the scenario.

Step 3

Student has to identify the Learning Issues (**L**) from the problem scenario. List all that you need to know in order to solve the given problem.

Step 4

Student has to identify the Actions Plan (A) from the problem scenario. Prepare a list in order to solve the problem.

Click the button 'Develop' to start FILA activity.

FILA is one of the structured method in PBL to solve the problem.

DEVELOP

STEP 1 - Identify Facts

The problem scenario shows that The School of Informatics aims to redesign its website.

As a Multimedia Designer, how can you help that School? You need to use FILA steps to start your activity. Before you solve the problem given, you need to identify what are the **Facts** given from the scenario. List out all the facts that you can gather from the problem scenario.

*Once you complete Step 1, proceed to Step 2, 3 or 4.

STEP 1 : Facts

STEP 2 : Ideas

STEP 3 : Learning Issue

STEP 4 : Actions



STEP 2 - Identify Ideas

After you have identified all the facts. The next step is you have to identify the ideas. You can have a brinstorming session to get the idea. Be a creative person. You can browse the internet or information that might be related to the problem scenario.

Read the articles regarding user interface design to get ideas.

*Once you complete Step 2, proceed to Step 3 or 4.

STEP 1 : Facts

STEP 2 : Ideas

CTED 3 - Lografing Issues

STEP 4 : Actions

HINT

1. Get the meaning of the user interface design.

You can refer glossary/lecture module.

Know the design of website that suits your user click on the exploration module to get the ideas.



FILA Table



1. This is a creactivity part. You should be able to identify which ideas are great, and which

are not so great. Making sure that your idea is expandable is a good way.

STEP 4 - Identify Actions

You have to identify the possible actions or resources to solve a problem given.

List out the resources needed such as the internet, HCl books, conduct interview, observation, gallery, online forum and etc.

STEP 1 : Facts

STEP 2 : Idea

STEP 3 : Learning Issues

STEP 4: Actions

DEVELOP FILA TABLE

STEP 3 - Identify Learning Issues

You are required to identify learning issues in order to solve the given problem.

List out all the Learning Issues that you can gather from problem scenario.

*Once you complete Step 3, proceed to Step 4.

STEP 1 : Facts

STED 2 - Ideas

STEP 3: Learning Issues

STEP 4 : Action

HINT

1. You can click on the exploration module and forum to get the sources.

HINT

HINT

The knowledge that you discoved from the scenario given. You can apply 4W
 (what, where, why, when and how) to identify learning issues.

Problem Based Learning







PROBLEM SCENARIO

LECTURER MODULE

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CHOOSE TYPES OF ASSESSMENT



Self assessment is a process where students are involved in and are responsible for assessing their own piece of work.



PEER ASSESSMENT

Peer assessment is where students are involved in the assessment of the work of other students. They have to work in pair.

Type of assessment based on students preferences. They have to fill The answers using FILA table. The can download FILA table form in the system.



FILA Table

FACTS IDEAS LEARNING ISSUES ACTION PLAN

Student has to fill in the FILA table based on the problem.

To fill in the table, click FILA TABLE FORM

CLOSE



Problem Based Learning







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WEB LINK



ARTICLE



EXPERT VIEW ON PBL



e-BOOK



GALLERY



EXPERT VIEW ON HCI

Example of submodules in Exploration module

Example of web links

PBLAssess Problem Based Learning







PROBLEM SCENARIO

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WEB LINK

HCI WEBSITE

hci journal interaction design

hci at stanford

hci institute

hci group

hci resources

sigchi

interaction design user interface design

EXAMPLE OF WEBSITE

EDUCATION

e-learningforkids educational games

COMMERCIAL

1malaysia tourism malaysia

PERSONAL

siti zone

ORGANISATIONAL

government portal

BLOG

googleblog

NEWS

the start online new straits times

ENTERTAINMENT

flyfm tv3

MODULE OUTCOME

PROGRAMME OUTCOME

Please make sure you have connected to the internet before choosing any listed sites above.

The site will automatically opened in your internet browser.

Example of related articles

PBLASSESS Problem Based Learning







PROBLEM SCENARIO

LECTURER MODULE

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Introducing User Interface Design



Golden Rules of User Interface Design by Theo Mandel



Interface Design by Spring 2010



User Interface Design in Modem by Dmitry Fadeyev



Experience Design vs. Interface Design by Bill Buxton

MODULE OUTCOME

PROGRAMME OUTCOME

There articles are in PDF format and need Adobe Acrobat Reader to read the files.

The file will be opened in your internet browser.

Problem Based Learning





PROBLEM SCENARIO

LECTURER MODULE

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EXPLORATION

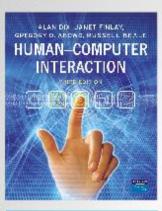
ASSESSMENT

FORUM

MODULE OUTCOME

PROGRAMME OUTCOME

e-BOOK

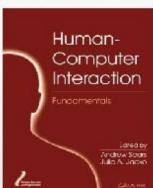


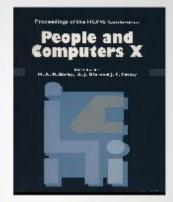
INTERACTION

DESIGN

beyond human-computer interaction









Please make sure you have connected to the internet before choosing any listed forums above.

The forum will automatically opened in your internet browser.

Example of e-books for reference.

Problem Based Learning







PROBLEM SCENARIO

LECTURER MODULE

PROBLEM SOLVING

GLOSSARY

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FORUM

MODULE OUTCOME
PROGRAMME OUTCOME

GALLERY



Example of good website design.

Problem Based Learning







FORUM

PROBLEM SCENARIO

LECTURER MODULE

PROBLEM SOLVING

GLOSSARY

EXPLORATION

ASSESSMENT

FORUM

ulearn.utem.edu.my

designerstalk

webdevforums.com

websitebabble.com

daniweb.com

cnet.com

ulearn.utem.edu.my
Is linked to UTeM
e-learning portal

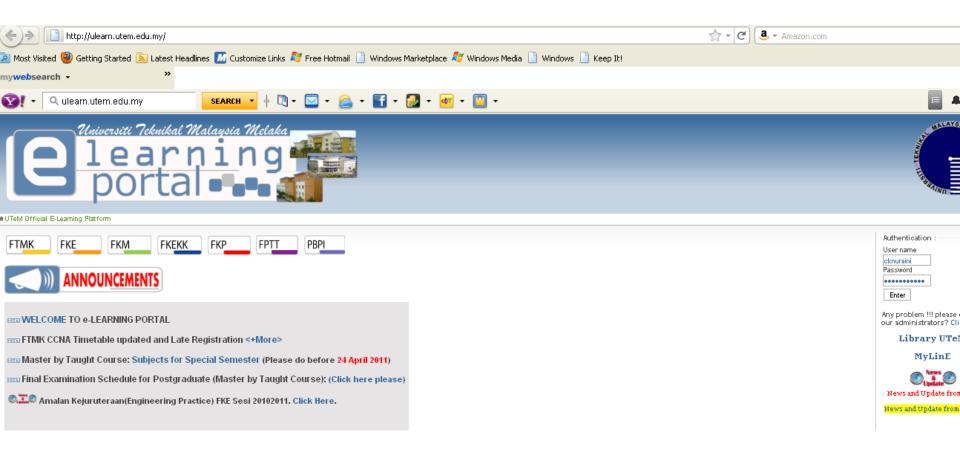
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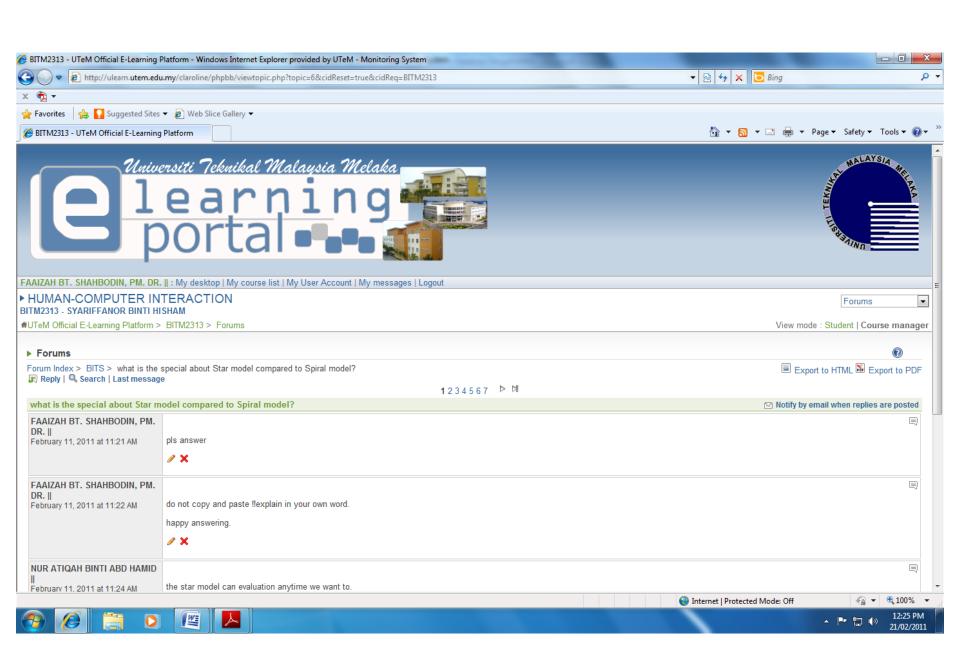
The forum will automatically opened in your internet browser.

MODULE OUTCOME

PROGRAMME OUTCOME

UTeM e-learning portal http://ulearn.utem.edu.my





1. Rubric of Scoring

Rubric of Scoring Performance Assessments

	Score					
Criteria	1 (Deficient)	2 (Flawed)	3 (Limited)	4 (Competent)	5 (Strong)	
Facts Understanding					x	5
Ideas Generation				x		4
Issues Performing					x	5
Action Plan					x	5
Total Score						

2. Example student answer- Good

Facts (Known/ Given info)	Ideas (Opinions/Idea derived from the facts)	Learning Issues (What you need to know)	Action Plan (What you need to do)
Designing website product that seed education market.	1. There are rules to design a website.	1.What is the suitable rules to design website?	Perform interview With expert in education. Google website, search any templates
2. Target user primary student.	2. We need to know target user for our designs.	2. What is the suitable syllabus for the target user?	Conduct research regarding with suitable syllabus.
3. Help people get started with the educational website.	3. Design website is not an easy process.	3. How to make a simple and understandable website?	Replacing icon button instead text. Use the simple and understandable words. Plan storyboard and flow
4. Develop a good educational website.	4. Contents and format are important in producing good website	4. What are the sources needed to develop the content?	.Adding multimedia elements that appealing to primary students

2 B PAPER - reflection..attendance

NURUL AQILAH BT. AZMI BO30910024

BEST :

_ the importance thing should apply in Project Management = have more about that.

- all the position in a project management.

- the process during the project development K production post production.

-importance of WBS.

BLYRR:

.: the word deliverable : poorly defined deliverable.

805+: -

- 1 presentation jelas especially further explaination from Dr.
- (2) what the project is.
- 3 clearly understand the risk that we have to face
- (4) the understood about the triple influences of something the iron Triangle (Scope, Cost, time) if we changing one of them:
- (5) clearly defined the attributes of the project.

Blubr:

- (1) how to manage hisk
- @ what is the best solution that we have to take if we have only problem every problem have different solution.
- (3) How to have effective communication with the customer.

PBL Planning Tools

PBL Planning Form













PBL Information Gathering Tools





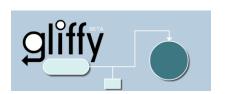








PBL Organizing Tools



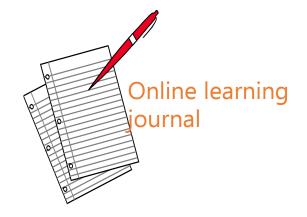






























PBL Assessment Tools









MATHY SCHROCK'S GUIDE FOR EDUCATORS

Problem Scenarios presentation

Examples of trigger material for PBL scenarios

- Paper based clinical scenarios
- Experimental or clinical laboratory data
- Photographs
- Video clips
- Newspaper articles
- All or part of an article from a scientific journal
- A real or simulated patient
- A family tree showing an inherited disorder



How to create effective PBL scenarios

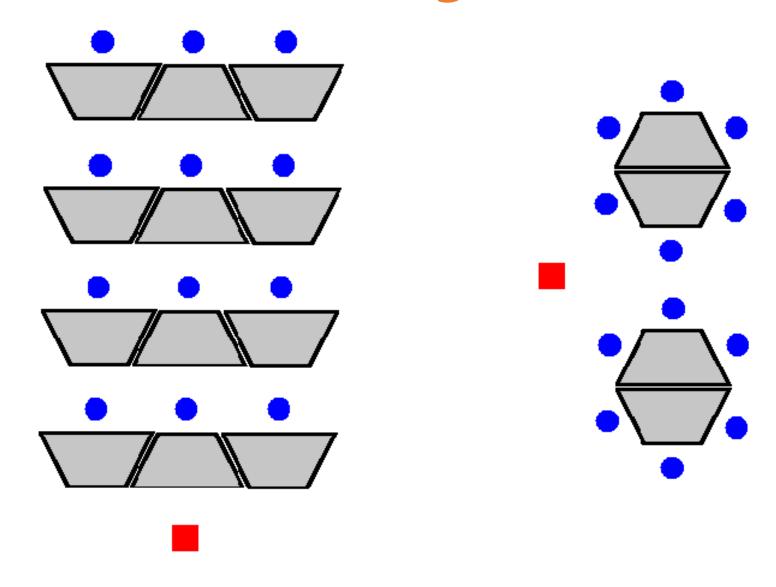
- Learning objectives likely to be defined by the students after studying the scenario should be consistent with the faculty learning objectives
- Problems should be appropriate to the stage of the curriculum and the level of the students' understanding
- Scenarios should have sufficient intrinsic interest for the students or relevance to future practice
- Basic science should be presented in the context of a clinical scenario to encourage integration of knowledge
- Scenarios should contain cues to stimulate discussion and encourage students to seek explanations for the issues presented
- The problem should be sufficiently open, so that discussion is not curtailed too early in the process
- Scenarios should promote participation by the students in seeking information from various learning resources

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CHECKLIST

- Is the content of the problem geared to students' prior knowledge?
- Is there a clear connection with one or more of the objectives of the block?
- Is the problem sufficiently complex to offer cues for initial discussion and for generating learning issues?
- Is the problem structured in such a way that it offers cues for discussion in the group?
- Has the problem been formulated clearly and, if possible, does it offer links with professional practice?
- Is the problem multidisciplinary and is clear to students?
- Does the length of the problem enable inclusion of all the relevant information that is needed for identifying learning issues and does the problem not contain superfluous irrelevant information?
- Is the available time sufficient for studying the learning issues?
- Is there sufficient time available for reporting on all the learning issues?
- Does the block offer sufficient variety in learning activities, i.e. does it include different types and formats of problems?
- Is the number of problems geared to the number of group meetings in the block? Has a schedule been drawn up that specifies which problems are to be discussed when?
- Which problems should be tackled in a specific sequence?

Classroom setting



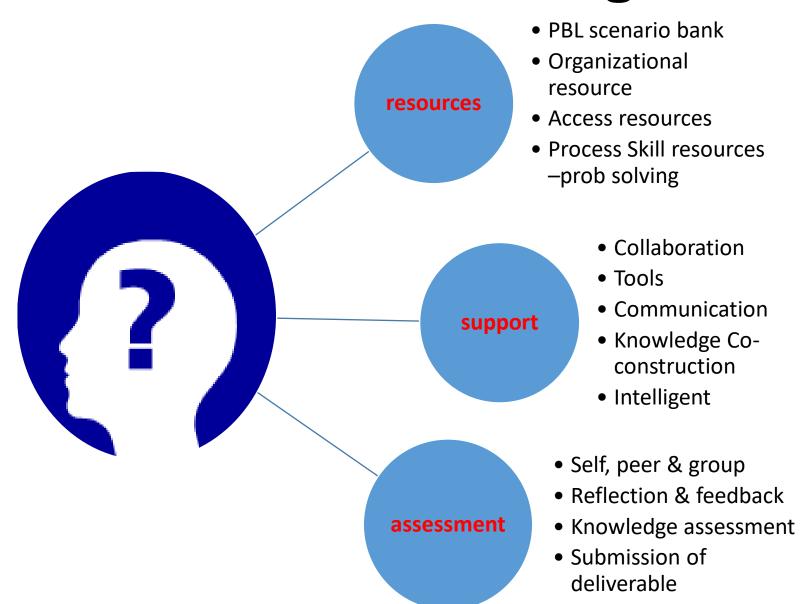
Collaborative workspace



Flexible furniture in PBL classroom



Issues and challenges



Research done: Short Grant

Integrating PBL Approach in Developing an Interactive Web based Learning for Technical Course PJP/2008/FTMK (19)-S498 -completed

Developing and testing of an assessment technique using PBL approach: A case study on FTMK Human Computer Interaction (HCI) Course. PJP/2009/FTMK (12D) S591- completed

Developing and testing of PBL and game technique in learning Methematic: A case study at Merlimau Politeknik. – completed PJP/2010/FTMK (15D) S789



AAU – Teaching ang Learning category – PBL Innovation



Malaysian Association of Problem Based Learning (MyPBL)



Tagline:
PBL DRIVES TEACHING AND LEARNING

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