

UTP Community Online

By

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Dissertation submitted in partial fulfillment of
the requirement for the
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CERTIFICATION OF APPROVAL

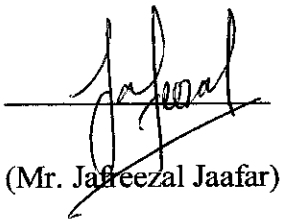
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A Project dissertation submitted to the
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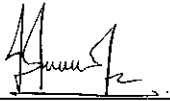
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1. web sites -- Design
2. IT/IS -- Thesis

CERTIFICATION OF ORIGINALITY

This is to certify that I am responsible for the work submitted in this project, that the original work is my own except as specified in the reference and acknowledgements, and that the original work contained herein have not been undertaken or done by unspecified sources or persons.



(FARILAH BINTI YUSOFF)

Abstract

This project focused on the development of UTP Community Online. The main objective of this application is to ease the users in searching or finding information at anytime and anywhere. This application allows users can access through PC with the internet connection and also using the SQL server. Each registered users will have their detail in administration database that specialized in managing this application. The system is developed to be use by all type of user but it focus on meeting students' need especially UTP student. To build this application, the uses the SQL server with ASP support and Dreamweaver MX.

In developing this application, one method being selected named 'Hypothetico Deductive'. In this method it consist of three major phase which is the analysis, design, and development and evaluation. It helps the author to formulate a theoretical framework of all the factors contributing to the problem. From the theoretical framework, which is meaningful integration of all information gathered, several hypotheses can be generated and tested to determine if the data support them. Concepts are then operationally defined so that they can be measured. A research design is set up to decide on, among other issues, how to collect further data, analyze and interpret them and finally provide an answer to the problem. The process of drawing from logical analysis an inference that purports to be conclusive is called deduction. Thus, the building blocks of science provide the genesis for hypothetico-deductive method.

From the method that the author choose, shows that UTP Community Online is more effective than the conventional way. This can be proving from the evaluation that being implement. From the heuristic evaluation, it shows that UTP Community Online is more comprehensive because it consist a lot of understandable attribute such as it used the user language, consistent, simple and natural dialog. In term of walkthrough evaluation, it shows that time measured from the user to access this application is faster than conventional way. Based on the result, the author concluded that, student can search information more easily if they used UTP Community Online than conventional way.

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LIST OF ABBREVIATION

ASP - Active Server Page

UTP - Universiti Teknologi PETRONAS

URL - Uniform Resource Locator

CHAPTER 1

INTRODUCTION

1.1 Background of study

In designing a computer-related product, there are many decisions to make as the product goes from a set of vague customer requirement to a deliverable entity. Based on the user task and requirement, standard and principle are established so that many options can be gauged and best alternatives can be chosen for the product. The design for UTP website provide information regarding the reason on which decision were made and serves as documentation for later modification of the website. This website also being introduce for student and alumni purposes in order for them to find and change information. This website also provides latest information which keep updating by authorize people.

“UTP Community Online” is a website development that integrates several elements. The element is ASP, SQL Server, and Dreamweaver MX. The website also has some messages which will be pop up in order to make the system to be more understandable and can be followed by users. The interface was kept simple and straightforward. The main function related to the University is put on the main column. This website also allow user to establish and maintain a working context or frame of reference.

Previously UTP only have e-learning system which is for the student purposes and the UTP.net for the lecturers and staff purposes. Student itself does not have any net to access other than e-learning. Only e-learning allow student to do their task like download notes, check announcement and others. In the E-learning the customization is very limited, which mean only certain task that can be implementing using this system. For example if student would like to register courses or curriculums they can not do so from the e-learning. By implementing this new website, UTP Community Online problem that occur can be solved.

1.2 Problem Statement

a) Problem Identification

To help student to reduce their work and time because previously student need to do their task manually like register their courses. This “UTP Community Online” also can solve student problem like student can view their course work and also the timetable because previously all the student need to go to UTP hall in order to get the timetable that being display on the notice board, so student need to copy all the subject that they take for that particular semester manually. This will burden and cause a lot of difficulty to students and also Admin people because they need to print a lot of paper to the entire student. By providing this item in the website it also can help in reducing the cost for printing paper.

Besides that it is hard to find the location of UTP campus but with this website it provides the map of UTP location which can help student especially new intake to identify the location of UTP campus. Developer also creates this website so that the alumni can always keep abreast with the latest news in UTP and allowed them to pass or give any idea through discussion board. They can keep coming out with latest information in order to enhance the UTP facilities or services. From this website also it helps a lot especially for alumni to find jobs.

b) Significant of the project.

By developing this system, existing problem can be reduced, because this system is in form of system that apply two way communication and interaction (between the user and the system) an some multimedia element (texts, sound, images) are inserted in the website. The communications, interaction and multimedia element help to enhance user’s interest thus motivates them to know and keep explore on the content.

1.3 Objective and Scope of Study.

The main objective of this research is:

- i) To design and develop “UTP Community Online for the UTP student and alumni.
- ii) To construct and conduct web usability evaluation in order to determine the user friendliness of website.
- iii) To expose the student with the “UTP Community Online”.

Scope of the Study

- 1) The scope of the study is to develop an online website for the UTP student in the campus. There are 100 responses being evaluated for the posttest questions and 30 responses being evaluated for the pretest questions.
- 2) Allow one to one relationship that is between user and system. Only users that are members are allowed to request a transcript or read the magazines.
- 3) Developer establishes a visual identity by using related visual elements through the site. When browsing the site, only the content at the center area changes, the rest remain the same.
- 4) Interactive elements
Developer focused on the interactivity element that is covered in this research. Developer focused on two interactivity elements, which are sound, text input and images. Below is description of each element:
 - a) Sound – form of encouraging to allow users to explore the web page in order to increase their interest to know more about website.
 - b) Text input – the space is given to user to enter text, in order to log in to the web page.
- 5) Target Audiences
This website is developed for the UTP purposes (student and alumni).
- 6) Time frame
Author tries to finish the project within the specified time frame, which is four months. This is due to the requirement by the examiner to see the project work is summated on specified date.

CHAPTER 2

LITERATURE REVIEW

This website integrates several elements. The element is ASP, SQL Server, and Dreamweaver MX. The website also has some messages which will be pop up in order to make the system to be more understandable and can be followed by users. The following section of this document will present the principle on which the functionality and user interface were built.

2.1 Develop a user-centered structured for the website

a) Simplicity: Usability versus functionality

The interface was kept simple and straightforward. Users benefit from function that is easily accessible and usable. Developer avoids a poorly organized interface cluttered with many advance function, which will distract user from accomplishing their intended tasks. An organized interface allows the user to work efficiently.

The main function related to the University are put on the main column, the personal and social function are put on the right hand side. The name of the link for those function guide the user where they can correctly perform their tasks. Basic function (member login, read news, announcement) are immediately apparent. Therefore developer keeps the number of function on the interface to a limited number while still allowing user to accomplish their task.

b) User Support: Place the user in the control and provide proactive assistance

To give user control over the system, developer designs the website so that it enables them to accomplish task using any sequence of step that they would naturally use. For example in order to request the transcript or to read magazines, user must be members of the community. User can either login first or then invoke any function under Academic Resources or they can opt to click on the link under Academic Resources first and then enter their user name and password to login. The design put the user at ease by letting

them experience the various way to accomplish a task rather than forcing them to do the sequence of action perceived as correct by the developer.

This Website also allow user to establish and maintain a working context or frame of reference. The current state of the system and the action that users can perform are obvious.

c) Familiarity: Build on users' prior knowledge

The user "population" is thoroughly analyzed so that the designer comes up with what users are accustomed to and what they are not. The interface is designed so that it allows users to use prior knowledge to perform any task, especially knowledge they have gained from experience in the real world. A small amount of knowledge, used consistently throughout an interface, can empower the user to accomplish a large number of tasks. User does not have to learn new things to perform familiar tasks, which also mean they can get started quickly and make progress immediately.

Here the use of term and control is very similar to the convention used on the Internet. Users do not wonder which object or control does what. An example can be the login and the password to the text box provided accordingly.

d) Obviousness: Make object and their control visible and intuitive

The control of the website are clearly visible and their function identifiable. Visual representation provides cues and reminder that help recognize what the computer is doing. For example, the text in the Arial and change color to black("Community", "Magazine", etc) when the mouse is up signify that they are link to other web pages and the functions of those links are intuitive by the use of meaningful text. The use of meaningful and succinct text on the link, buttons (Login, Reset, and Submit) also make the control more visible and intuitive to use.

The UTP Community Online website allows users to interact directly with the object and minimize the use of indirect technique. Identifying an object and doing something with it usually are not separate action in the real world. Therefore, with "direct manipulation"

approach, user can see immediately the result of their actions, An example can be when the user who is not member clicked on the Magazine link, then she or he receives a message that tells that the user to login to be able to go further. In case logged in member clicks on the link “Transcript Request”, this user can see that he has access right to this area because there is no warning and she or he is led to web page where she or he is prompted to fill in necessary information to request for a transcript.

e) Encouragement: Make action predictable and reversible

Two of the most important features of direct manipulation recommend by D.A. Norman, Direct Manipulation interface (1986) are reversible action and predictable action. Therefore, developer designed the website so that user gets immediate response from the site and action should cause the result the user expects. If they click on “Home Coming event”, a web page with the title Home Coming Event on the top, that tell users they are now in a section designed for Home Coming Events.

To meet those expectations, developer had to analyze and understand the user’s task, goals, and mental model. Developer use term and image that match user’s task experience, and help user understand the object and their roles and relationship in accomplishing tasks (the wording, use of observation, etc).

The main of this design for this website is to let users feel confident in exploring, knowing they can try an action, view the result and undo the action if the result is unacceptable. For instance, when fill in personnel information, they can reset if they feel that the information entered is not what they meant. Users feel more comfortable with interface in which their action does not cause irreversible consequences.

f) Satisfaction: Create a feeling of progress and achievement

Allow the user to make uninterrupted progress and enjoy sense of accomplishment. Reflect the result of actions immediately, any delay intrudes on users’ tasks and erodes confidence in the system. Immediate feedback allows users to access whether the results were what they expected and to take alternative action immediately. For example, after

the user submits the information for updating, the user receives a message with the content “Your Information has been updated successfully! If you want to change, use the Back Button from the browse. Thank You for Update”. This message confirms the information has been updated and user finished doing a task.

g) Affordance; the meaning is explicit

The use of wording, control, and links on the website is managed and carefully chosen so as to avoid ambiguities. Object on the interface are put in a manner that user easily determine the action that should be done with an object. Users of the website can determine where to enter their information with textboxes led by the information texts.

h) Convention compliance: UTP’s design conventions.

Logo for UTP is the same as that on UTP’s website. Compliance to the design conventions helps make the site more standardized and follows the principle that was stated above whereas a design built with familiarity will be more usable or the users.

2.2 Use of text

a) Effective heading and important information placed first.

Developer put heading at each page and section so that users can quickly communicate the content of section or scan through information to find what they want. When user is in the page for information about Organization, there is a heading named Organization. Similarly, for body text, developer followed the inverted pyramid strategy used in the newspaper writing, user can read salient information immediately and then read the full version if they want more detail by clicking the link “Read more”

b) Keep links separate from text blocks.

We keep the link either at the separate column or at the end of a text, and minimize the use of link between of the paragraph. This helps prevent the users from being distracted while reading the text because too many link can disrupt continuously and understanding.

2.3 Visual layout and Elements

a) Design within boundaries of an “image-safe” area.

This website was design based on common users’ screen resolution and size of their monitors. The resolution and screen size chosen are “1024 x 768 and 14”. With this developer can make sure that the user will see exactly the same as what developer is designing. Because user is more convenient on scrolling down than scrolling to right, this website was designed in a rectangular area that has its width less than the width of the window. The website also avoids using images and tables that are wider than this defined area. If images and table are wider than the browser window, a horizontal scrolling bar will appear. User often becomes annoyed if they have to manipulate a horizontal scrolling bar to see the content. Using defined image safe area will eliminate the possibility that user will miss some information in the horizontal lines when they find not to scroll horizontal bar.

b) Design in a style that will appeal to the users’ tastes.

Because this website is an official UTP Community Online website and the main user is university student and the alumni, the website was designed in more formal and professional style. There is no commercial advertisement as well as irrelevant stuffs. The visual style was chosen heavily in favor of academic and professional careers. On the other hand, animation was use with moving images or text, such as on Home Coming Event, Sport Event. The effect of animation is to attract user more on the content of the respective part.

c) Maintain consistent visual identity

Developer establishes a visual identity by using related visual elements through the site. A consistent visual style given a site a sense of unity and reinforce user’s experience that they are rooted in a certain place. Developer use the convention that developer place main link button on the left, secondary link hypertexts on the right in every page throughout the site, the center area was preserved for displaying text and images or any other data the user wish to see, and the top was used for website title, logo, a few

scrolling button, and link hypertext. When browsing this site, only the content of center area changes, and the rest remain the same.

d) Present message efficiently and avoid clutter

In designing button and hypertext, the informative caption were carefully selected to convey the intended message. Developer tried to use words that can “say more with less” and tried to eliminate superfluous elements. In this site, when designing the content for the “News and Events” component, developer divided into five basic and important items: Campus News, Community News, Coming Events, Home Coming Event and Sport Event. These five item are enough to represent news an event about the UTP Community Online. Using more than five can clutter the page. Developer did the same way for other component like Academic Resources, Information on Online Community, UTP Shopping Online, or Communication.

Every element of the design would support the goal of developer message. In Home Coming Event page, there is a picture of UTP main hall. Developer used this picture because it is a picture of the important hall in the university where most UTP community had many memories about it. Developer reason the same way when using the picture of Sport Complex in the Sport Event page. In the “Organization”, there is picture of board of director. There are no purely decorative element in this site since a tremendous amount of information will compete for user’ attention and information overload can cause discomfort and prevent users from finding the information that they want.

e) Avoid requiring user to scroll in order to determine page contents.

As mentioned earlier, in the design of this website, developer tried to eliminate the horizontal scroll bar but developer had to use the vertical scroll bar due the large amount of information in some certain section. However, in order to help users recognize immediately the important subject of any given page, elements, that are critical to identifying page content were placed the image-safe without scrolling.

2.4 Use Navigation element consistently.

Once users see a link, they expect when they see it again it look the same, be in the same location, and the function the same. Therefore, the entire navigation element in this site consistently. Developer used the top and the left areas of page for navigation and identity. In the first page or home page of this website developer used tab like scroll button on the top. What developer mean here once the user click the button 'Student' there will be sub item under it (Register Course, Vie Mark, Timetable, Consultation, UTP Map, Message Board, Exam Tips, Co-Q, Booking Facilities) and same goes to the Alumni button that also consist some sub item under it (Discussion Map, Profile, Career Net, Gathering Distance Learning). Flash text for main hyperlink placed on the top and at the left hand side, and normal hypertext for secondary links placed on the right. This convention was applied throughout the site. Developer also considered alternatives of having different fonts and colors for decorative and aesthetic purpose. However developer learned that if the structure has changed, users might have to relearn, which will delay their completion of task.

CHAPTER 3

METHODOLOGY

3.1 Methodology Framework

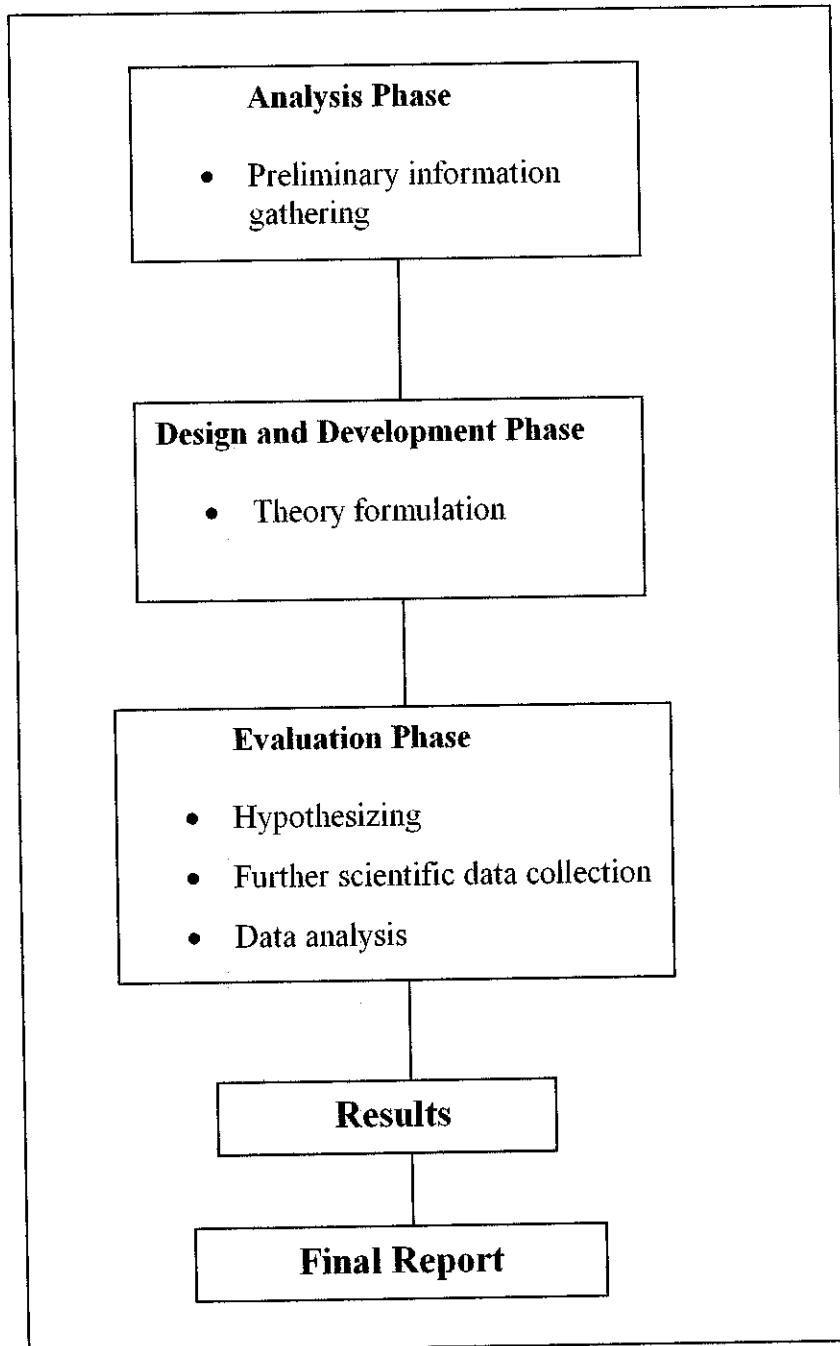


Figure 3.1 Methodology Framework

3.2 Analysis Phase

3.2.1 Preliminary Information Gathering

Preliminary information gathering involved the seeking of information in depth, of what is observed. The objective is to gather information on what is happening and why.

a) Interview

The author has set up informal interview session with first year and third year students from UTP. The objective of this interview is to find general problem with the conventional approach. Please refer to Appendix 1 to review interview question. This interview will not cover in depth discussion. The author main point is to highlight that conventional approach has drawback that can be solve by using the “UTP Online Community website.

b) Questionnaire

A set of questions is given to 30 students in UTP. The objective is to gain general knowledge on what are the main problems that UTP’s student faces in accessing the net. The questionnaire is design in English language as it is more preferable and understandable by the student. Please refer to (APPENDIX 2: Pre-test questionnaire) to view questionnaire.

c) Literature Survey

The author has surf in Internet and study on other researchers finding on issues of community online system. The author uses other researcher’s finding as guideline and benchmark. From the literature survey, it helps the author to anticipate what kind of problem the website developer will commonly face and how to improve the system drawbacks. It is also use to support author’s study base on scientific facts. Please refer to References.

The author will do the test for testing its functioning. Then the author will proceed with another page. After finished the second page, the author try again connection between both. If success, proceeds with the next and so on so forth until completed all. Author will test the functionality and ensure the entire requirement needed have been implemented.

After all completed, the author will try it as a whole to whether the flow has been met the requirement and specification:

a) Visibility of System Status

The system always keeps the user informed about what is going on, through appropriate feedback within reasonable time.

b) Match between system and real world.

The system uses the simple user language, with words, and concept familiar to the user rather than system-oriented terms.

c) Recognition rather than recall

Make object, action and option visible. The user should not have to remember information from one part of the dialog to another. Instruction for user is visible whenever appropriate.

d) Flexibility and efficiency of use.

May often speed up the interaction for the expert user to such an extent that the system can cater to both inexperienced and experienced user. Allow user to choose any frequent actions.

3.3 Design and Development Phase

3.3.1 System Flow

This section will show as general how the system will run. For this application, the author was divided it into 2 levels that are users and admin. Most of the project task will cover on user's interface and admin page.

3.3.1.1 System and Design

a) User Level

For the flow figure, please refer to Table 3.3.1.1 (a). Below is description of each task in the system flows.

Login Process

For the first time user, the user need to complete the student registration form provide by the system. In the registration form, the students need to enter their username and password. This process will start after student has registered with the system. A specific database had been developed to store all the in formation about the particular student. An unauthorized user will not allow entering the system unless they fill the registration form.

Access web content

User can access the home content such as register course, view mark, timetable, sign up for new member and etc.

Access community Information

This site can help user view all the information or search any information that they need to view from narrow to a broader area. It also covers all the update and latest event that happened in UTP such as News, Events, Press Room, and Library Online.

Check Information Availability

Before user decided to search the information that they needed, they need to ensure that the material or in formation which they wanted to search is available or not. This site will display all the latest and available information.

Search

Once the user are allowed to access this system, all the information that user need will bring them to student board that allowed user to continue find information.

Exit

If user have confirmed and satisfied with what they want to search, they can click exit button to logout the system. At this point, user's task is finished in searching information. They only need to wait for any latest announcement to be delivered

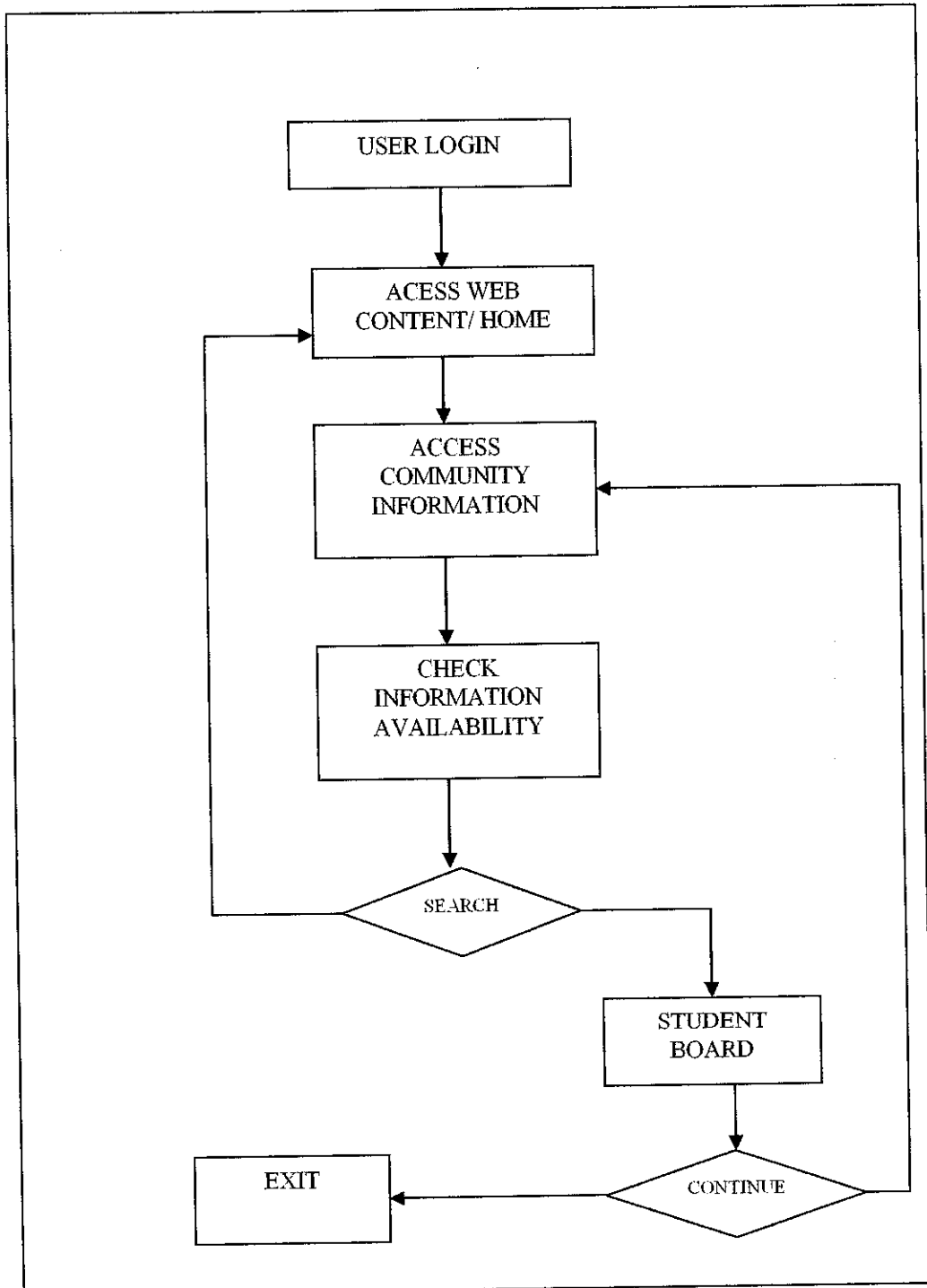


Table 3.3.1.1(a) User Level

b) Admin Level

Get user detail

When user click button submit, the information will be saved in database.

Verify user information validity

Then administration will verify whether user ID and password is match with registered users.

Send to web based

Then, administration will send the information for approval.

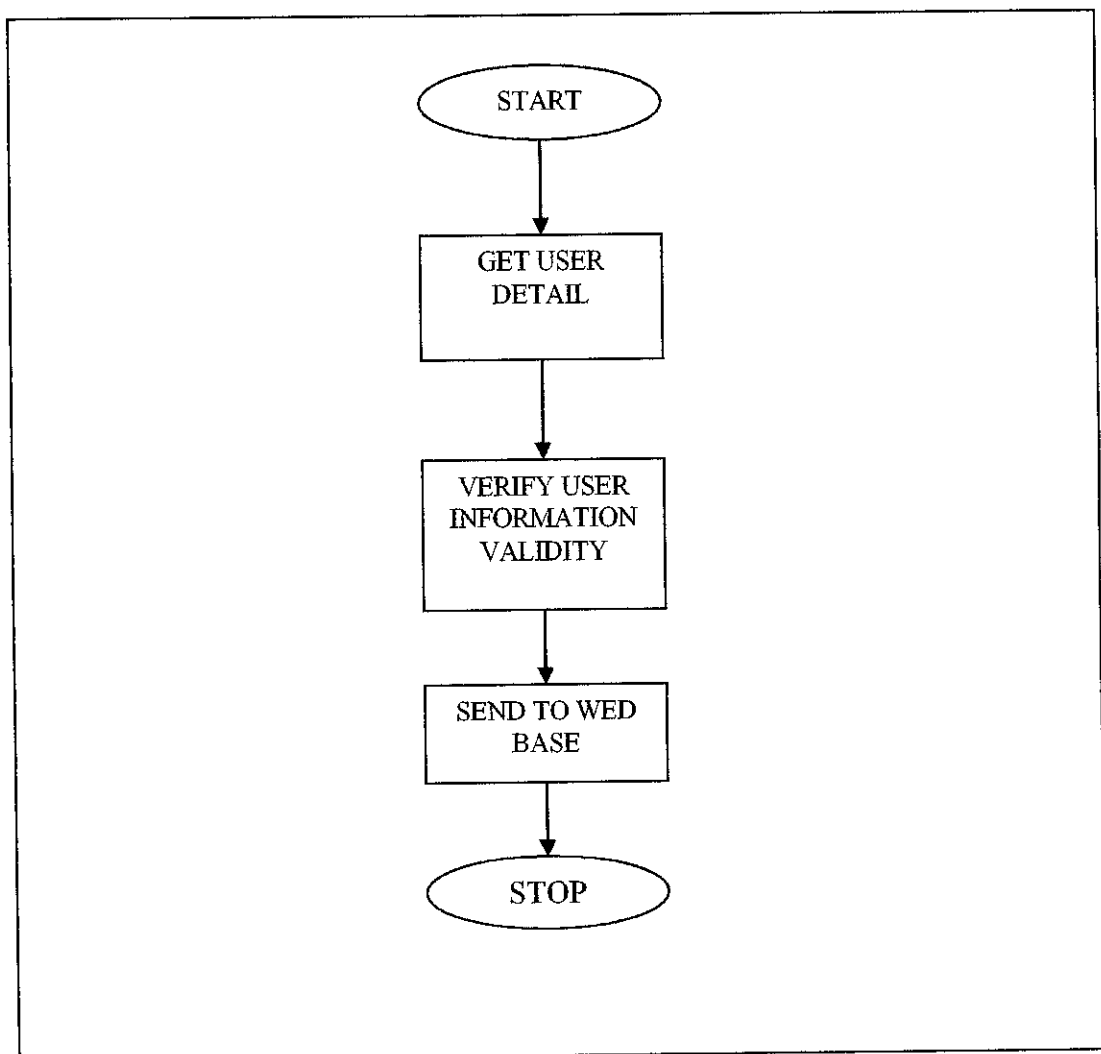


Table 3.3.1.1 (b) Admin Level

3.4. Evaluation Phase

a) Theoretical Framework

From the theory formulation, the author has address that effective in finding information can be achieved by personalization. In order to come out with theoretical framework, the author has set “effective in finding information” as dependent variable whereas “personalization” is the independent variable. This means higher personalization may result in more effective in finding information and vice versa. If we change personalization value, it will affect the effectiveness in searching or finding information.

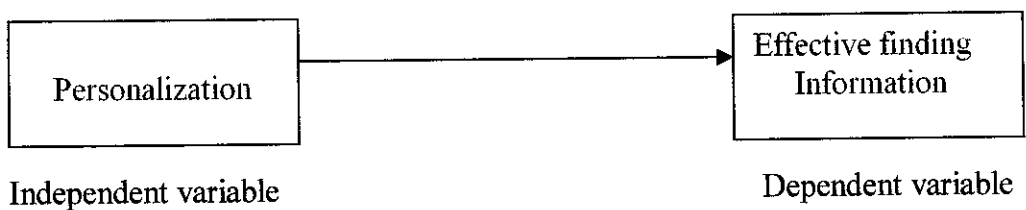


Figure 3.4(a): Theoretical framework

b) Hypothesizing

Theoretical framework discusses the interrelationships among the variables that are deemed to be integral to the dynamics of the situation being investigated. By having theoretical framework, it helps the author now in developing a hypothesis. The hypothesis must be testable, which in turn, would determine whether the theory formulated earlier is valid or not. Statistical analyses are usually used to test the hypothesized relationships. With refer to the theory formulation, the author has state that searching information will be more effective if the searching approach is personalized according to student needs. UTP Community Online can address and support

personalization or one-to-one relation between students and lecturer. From this statement, author has come up with general hypothesis;

$H_o =$ '*UTP Community Online is better medium that can provide effective searching information than conventional searching style*'

$H_1 =$ '*UTP Community Online is not a better medium that can not provide effective searching information than conventional searching style*'

3.5 Further Scientific Data Collection

Scientific data collection is needed to test the hypothesis that is generated in the research.

Sampling, experimental design and developing prototype are 3 steps required to get scientific data collection.

a) Sampling

Sampling is the process of selecting a sufficient number of elements from the population so that by studying the sample, and understanding the characteristics of the sample subjects, it would be possible to generalize the characteristics that need to be attaching to the website. The author has select 30 UTP students from different batch. In a research work, choosing the right sample is important because the result of analysis of the sample would very much reflect the website design.

b) Experimental Design

Experimental designs, which include both the treatment and control group record information both before and after the experimental group is exposed to the treatment, are known as post facto experimental design. These are discussed below;

Pre-test and post-test experimental and control group design

- One experimental group and one control group are exposed to pre-test and post-test.
- Experimental group is exposed to treatment while control is not.
- Treatment effect is measured by subtracting the differences in the post and pre-test scores of two groups.

Group	Pretest	Treatment	Posttest
Experimental group	O ₁	X	O ₂
Control group	O ₃		O ₄

[Treatment effect = [(O₂-O₁)-(O₄-O₃)]

1. 15 students are selected as control group. Another 15 students are selected as experimental group.
2. Both control and experimental group are exposed to pretest (APPENDIX 2: Pre-test question). In pre-test, each student has to answer close-ended question. The average result for experimental group is recorded as O₁, while the average result for control group is recorded as O₃.
3. Then, each group will have post-test (APPENDIX 3: Post-test question). Another set of closed-ended question are given to each group. The result for experimental group is recorded as O₂, while the result for control group is recorded as O₄.
4. In order to measure the treatment effect, the author has used this formula;

[Treatment effect = [(O₂-O₁) - (O₄-O₃)]

After the experimental, the authors give post-test questionnaire (APPENDIX 3: post-test questionnaire) to experimental group

3.6 Data Analysis

In this phase, the author will assess the listed specification and user's consideration to meet the objectives. Also determine the tools to be used (e.g. Active Server Page (asp)). The author analyzes a few points to ensure the entire specification meet the project objective.

User evaluation

No	Evaluation if the Web....	Evaluation
1	Attempt to reach an audience that has and will use web access	Web admin is who will maintain the information. User here will be the student which web is created for. User is willing to use the web because it will ease them.
2	Is self-consistent (its purpose matches its objectives and specifications).	Author need to sharpen the objectives so that it is clear to what depth the author currently reaching. Author clearly list out the specification to ensure it can be done within the time frame.
3	Is correct (the domain information it presents is accurate, up-to-date and complete).	Domain information here is ASP And SQL server.

Table 3.6 (a): Analysis Checklist of web specification

After that author analyzed more about the user include administration to see the differences

User Analysis Table				
Who?	Why?	Characteristic	Concerns	Activities
Users	To access and find information	Seeking information. (Web).	Ease to use and understand.	Search and access page they wanted to.
Web Admin	To maintain the data inside.	Net users.	Ease to use and understand.	Distributing and searching using web information.

Table 3.6 (b): User Analysis.

After data being analyze author does the test for each page, and then link with others and finally test the system as a whole.

3.7 User Evaluation

a) Heuristic

Heuristic evaluation, developed by Jacob Nielsen (1990) and Rolf Molich (1990), is a method for structuring of system using a set of relatively simple and general heuristic. It is best use for evaluating the designs, because it is easier to fix a lot of problem that arise. But all that, is required to do the evaluation that descript the system which can range from a set of interview giving overview of the system to fully functioning system that is use in the field. The original list of heuristic is as follows:

- a) Simple and natural dialog
- b) Speak the user' language
- c) Minimize user memory load
- d) Consistent
- e) Provide Feedback

These heuristic have improved the system more comprehensively. For the cognitive walkthrough, two different people from different field being selected. One is from the lecturer and the other is from the admin people. They were given a couple of week to

access this system and finally they need to evaluate the system. The author gathers information on the evaluation of cognitive walkthrough from them. The evaluation that the author find are as followed:

b) Cognitive Walkthrough

The Overall application is the testing and checks its connection from page to page especially ASP files.

In the cognitive walkthrough, the sequence of action refer to the step that an interface will require a user to perform in order to accomplish some task. Main focus of the cognitive walkthrough is to establish how easy a system is to use. Experience shows that many users prefer to learn how to use a system by exploring its functionality. (Please Refer Appendix 6 to view the Interface).

Once the user click the Course Registration from the interface it will look like the following features, refer Figure 4.1 (c) (course registration) it will need user to key in the username and password.

Then when user click submit it will display the course that the user can choose. (Please refer Appendix 4.1 (d) (confirmation course registration)).

After that user needs to click the summit, that it will display the entire course that being confirmed and this data will be saved in the data base. (Please refer Appendix 4.1(e) (save course registration)).

According to the cognitive walkthrough, the interface provide indication that user need to press in order for them to proceed with the next task. For example when user do the registration course they only need to fill the requirement and submit, just as the previous interface explanation. User need to go page by page for task that they want to access. Calculation for them taken by user is as followed:

$$\begin{aligned}\text{Minimum Time Average/person} &= (t_1 + t_2 + t_3 + t_4 + t_5 + t_6) / \text{no of person} \\ &= \text{min/ person}\end{aligned}$$

Please refer Table 3.6 (a) & Table 3.6 (b) for the accumulated data.

Based on the calculation, show that the web is easier to use since the max time average not even exceed 10 min, and this shows the application is easy to access and cause a lot of time saving.

CHAPTER 4

RESULT & DISCUSSION

4.1 Implementation

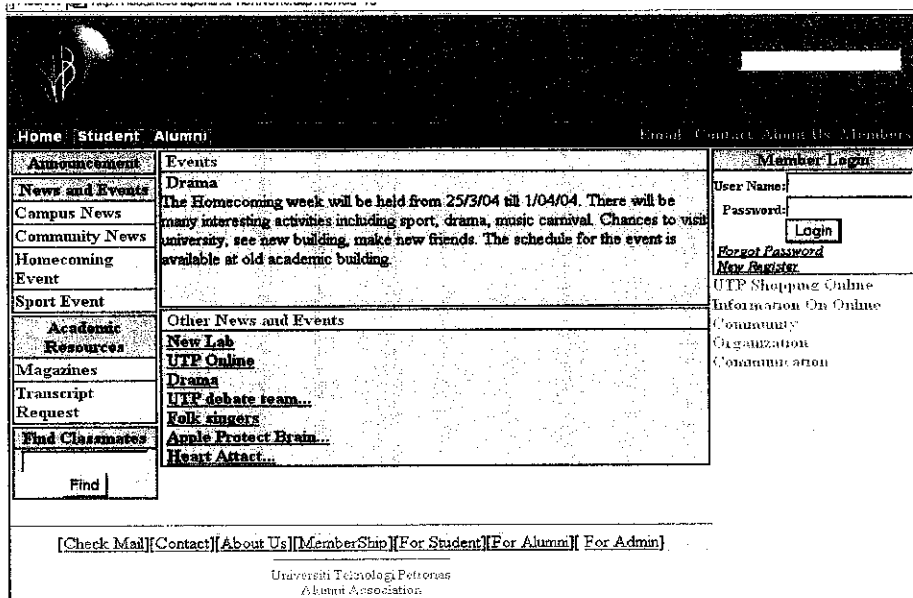


Figure 4.1 (a) Interface

In the interface, user needs to log in the system before they can view all the material that being provide in the system. At the top corner it consist of three item, such as Home, student, Alumni. When user click the student it will display a scroll down menu that consist of course registration, consultation, timetable and others, For further description of the looks please refer Figure 4.1 (a), Figure 4.1 (b), Figure (c), Figure 4.1 (d), Figure 4.1 (e). For the Alumni button it consists of consultation time, message board which allowed them to send any opinion or suggestion.

At the left hand side of the interface it contains of Campus News, community News, Home Coming Event news And Sport News. At the right hand side, user need to key in their password and username. For those who forget their own password they can do so by clicking at the forgot password and those who is not member of the community, they can be one of the communities member by clicking at the register link.

4.2 Summary of Interview Result

The author has chosen one UTP student to get their feedback and opinion on current e-learning system and UTP Online Community system. This survey being selected as research sample. The author also has set up interview session with them to see on how they communicate or passing data to lecturer with this online system. Please refer to (APPENDIX 1: Interview question) to view interview questions. Based on the feedback that the author get shows that there was a lot of improvement and extra information need to be put in order to enhance the conventional system. Since student requirement keep increasing each minutes the best solution for enhancing the conventional approach system is using the UTP Online Community approach which is simple and easy to use. Based on the result of interview shows that the icon in the website application is simple and easy to recognize, the head title is clear and can be understandable. User also agreed with the background color since it is suitable for the admin purposes.

4.3 Pretest questionnaires.

The objective of the questionnaire is to solicit student problem with conventional approach. It is just like the informal interview objectives, but the author focus is opinion and feedback from student. Please refer (Table 4.3 (a): Pretest Questionnaires Testing) for further detailed.

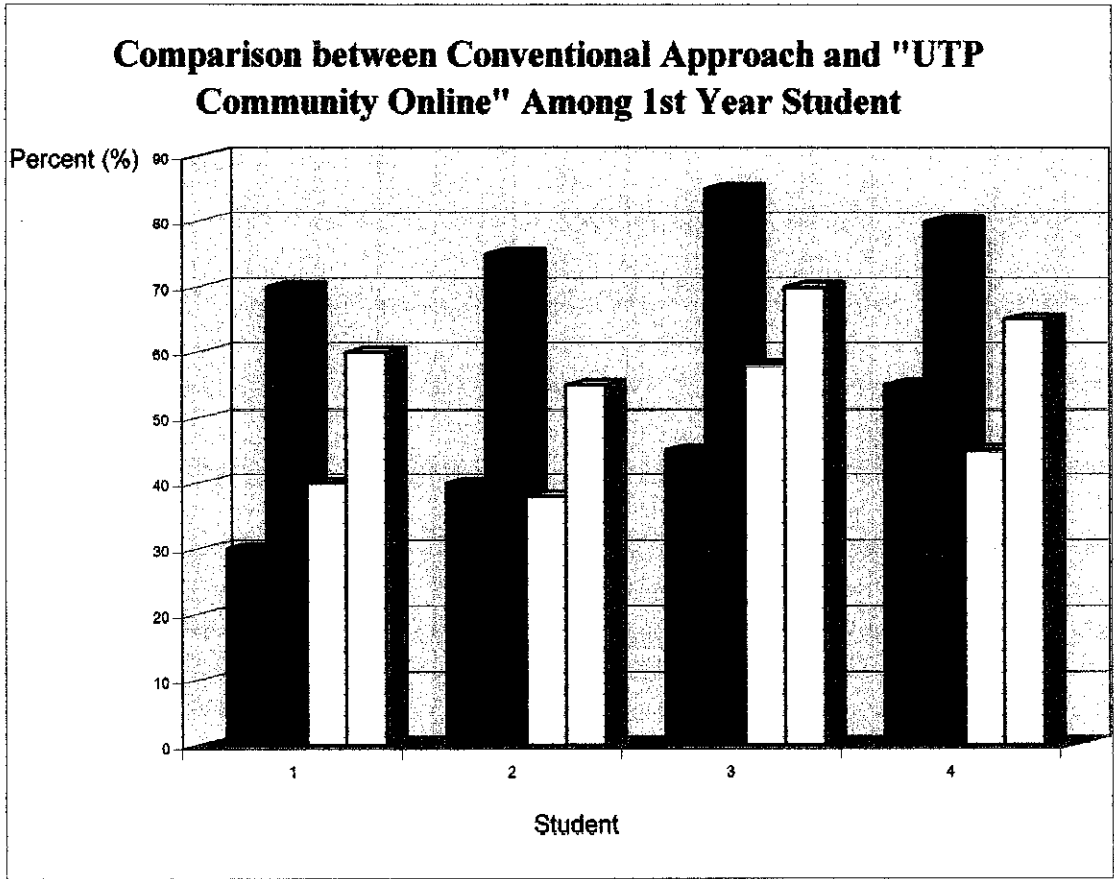


Figure 4.3 (a)

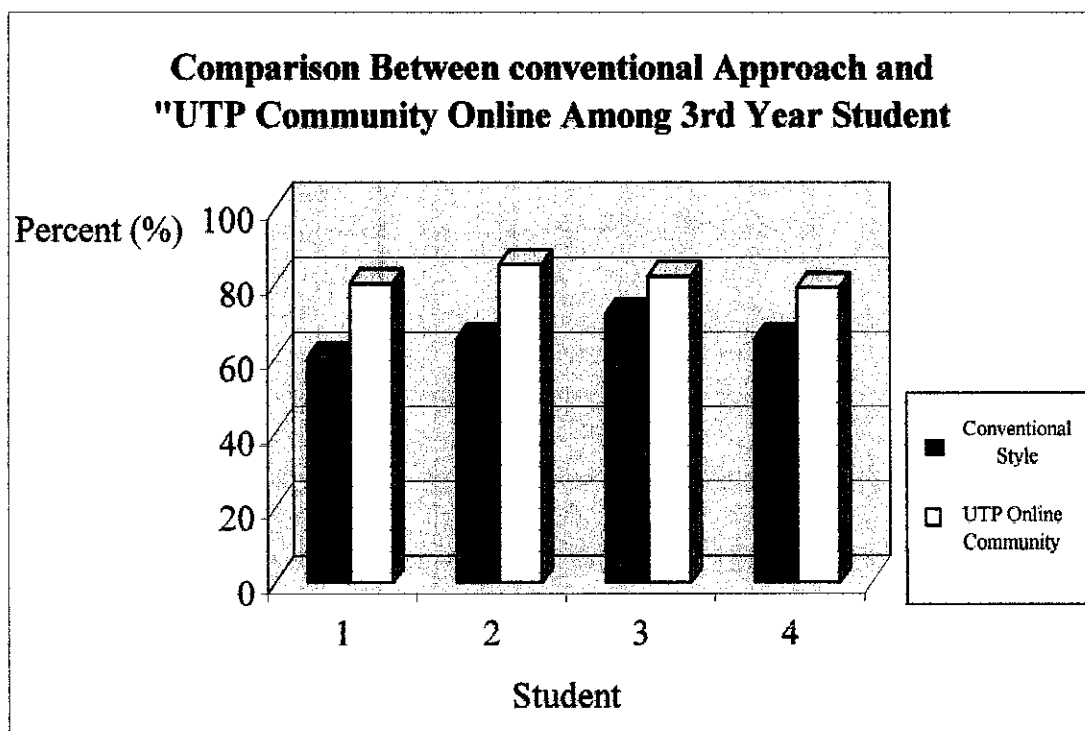


Figure 4.3 (b)

From graph 4.3 (a) and 4.3 (b) was conducted to compare the student performance using conventional approach and "UTP Community Online" website approach. Both tables show the score for each student. The experiment involves four students for two groups, one from year 1 and the other group from year 3. As in Figure 4.3 (a) which from first year student shows the different percentage scored by student using conventional and "UTP Online Community" website?

Base on the result displayed in the graph, shows that the student can find more information using the "UTP Community Online". Even the first time, is hard and difficult for them to use the site since they are still new with the application, but their average mark increase when ask them to use this application for the second try. On the first try, the author needs to give short briefing and some explanation although the content per page is limited but the "UTP Community Online" can provide useful information and material very well with the hypermedia and hypertext elements. As conclusion, using the "UTP Community Online" can help the student to find and search useful information.

4.4 Experimental Design

Pretest Result (%)

Total Control group (O_3) = 297

Total Experiment group (O_1) = 323

(Please refer Appendix 4 for accumulated data.)

Post Test Result (%)

Total Control group (O_4) = 432

Total Experimental group (O_2) = 554

(Please refer Appendix 5 for accumulated data.)

Group	Pretest	Treatment	Post test
Experimental Group	O_1	X	O_2
Control Group	O_3		O_4

$$\text{Treatment effect} = [(O_2 - O_1) - (O_4 - O_3)]$$

$$\text{Treat effect} = [(554 - 323) - (432 - 297)]$$

$$= 231 - 135$$

$$= 96$$

Discussion

With referred to treatment effect, the author can conclude that, student easy in searching information if they use UTP Community Online approach compare to conventional style.

“UTP Community Online” interface is just like other our conventional website which being build for student purposes known as E-learning. So, they don’t have big problem to navigate or search information through this website and get use with the “UTP Online community” content structure. The difference between “UTP Community Online” with conventional web is where some new extra information and features being added for the student purposes.

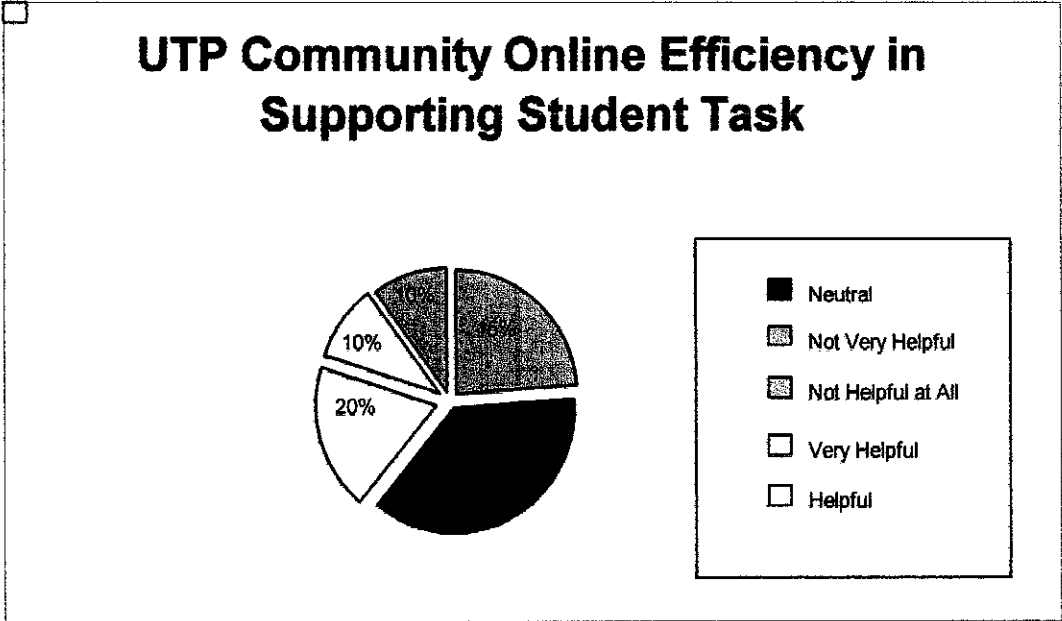


Figure 4.5 (b)

From figure 4.5 (b), 45% of respondent choose neutral, 30% of respondent say that, the website is either helpful or very helpful. While another 25% of respondent say that, the website is not very helpful or not helpful at all.

CHAPTER 5

CONCLUSION & RECOMMENDATION

5.1 Summary

This UTP Community Online being designed in a logical manner, so that the reason for research can be conceptualized and tested. The UTP Community Online also contributes to effective in searching information. Effective searching means student can easily get information through this website.

Based on the result, the interview shows that most of the student prefers UTP Community Online compared to the conventional style. This web development being evaluated on both heuristic and walkthrough. For the heuristic it shows the system have certain criteria such as simple and natural dialog, This system also use easy language that can be understand by all level of user, it also minimize user memory load, consistent and finally this system also provide a feedback. In term of walkthrough the UTP Community Online always keep users informed about what is going on, it also match between system and the real world, which mean the system provide a simple user language, with words and concept familiar to the user rather than system oriented terms.

This system also helps in recognition rather than recall that means user should not have to remember information from one part of the dialog to another. Instruction for user is visible whenever appropriate.

5.2 Recommendation

a) Add application or link such as Shopping Online and internet banking that would be very useful for all level of users. The author hopes this application can be implemented in UTP with cooperation between bank and the Internet Shopping Administration. Once the agreement is made between both parties, this application can be used where user have more confident to use this application since it is under bank administration.

b) Author also hope that in future user's can just use the ATM card to reload their money in the merchant bank (who specialize in managing need stuff account) or they may not required to reload or what so ever since the money will straight away deduct from their local account. This system also can be embedded with credit card application where instead of deducting money from bank, user can use credit card function.

c) Information and Content - Author recommend this system should be put at any necessary location so that user can access easily at any time for exam kiosk.

d) Design – Author recommend and hope in the future user can have authority to change the colors of the background according to their preferences once they get access to the website application.

e) Communication – In the future UTP Community Online can allowed users to communicate through the email or chatting room.

f) Infrastructure – Recommend that UTP Community Online can be access at the high speed mode through the network connection so that student can easily access to their own PC.

5.3 Conclusion

As a conclusion this application is suggested to be applied because it brings a lot of benefit. Based on the good response shown by user make it possible to implement. The trend toward easy and faster technology encouraging people to choose any application that can ease them in doing their task. Moreover, we already knew that web technology is the best medium to find information because the million of people using it at each minute.

Addition to some features, which they can access it anywhere and anytime, will make this application to be more affective. This is because the increasing popularity of accessing internet in doing their task rather doing in manual. As to prove that UTP Community Online can yield better result than conventional method, the interface of UTP Community Online is created. An experiment was designed to measure the effectiveness of the UTP Community Online, compared to conventional approach. From the experiment result, it proved that UTP Community Online can provide better information than conventional style.

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APPENDICES

(Interview Questions)

1. What is your opinion of our current online e-learning system?
2. What are the advantage and the disadvantage of our current e-learning system?
3. What are other features that can be put if new website being develops in order to make the website more informative?
4. What are the biggest frustrations you've experienced during the transition to e-learning system?
5. What is your opinion of this UTP Online Community website?

PRE-TEST QUESTIONNAIRES

Please fill in the questions below:

Name (optional):

Date:

Year:

1. Are you a/n:

Undergraduate

Graduate Student

2. Have you ever used a web site before? (e.g., My Yahoo [<http://my.yahoo.com/>];

My Netscape [<http://my.netscape.com/index2.psp>])

Yes No I don't know

4. Which of the following campus offices do you interact with on a regular basis? (Please check all that apply):

Registrar (class registration, fees, class schedules, etc.)

Financial Aid (grants, loans, fellowships, scholarships)

Central academic advising (at the College/School/Graduate Division level)

Academic advising in your home department

University Health Services

Library

Book store

Transportation/Parking

- Student Government
- Student Associations/Clubs
- Campus Career Services
- Recreation (Intercollegiate Athletics, Rec Sports, Cal performances, etc.)
- Other (please list):

5. Which of the following links would you like to access through your website? (Please check all that apply):

- Sports
- Political news
- Financial news
- Regional news (by country or world region)
- Weather
- Comics
- Travel
- On-line Campus Chat Groups
- External Career Services (e.g.. Monster.com [<http://monster.com/>], hot jobs [www.hotjobs.com], Craig's List [<http://www.craigslist.org/>])
- Book Price Comparison Engines (e.g. Best Book Buys [<http://www.bestwebbuys.com/books/>])
- Groupware (software designed for users to collaborate via the Internet and/or a local intranet)
- Other (please list):

6. Which of the following services would you most like the campus to provide through the web? (Please check all that apply):

- Calendaring (ability to keep track of your academic and financial deadlines, class schedule, appointments etc. through a single website)
- Financial transactions on-line (payment of fees, parking fees & tickets, bookstore transactions, etc.)
- Academic transactions on-line (requests for major/minor, request for transcripts/diplomas, check up on required courses for college/major/minor, electronic advising options, enrollment in classes, etc.)
- This Student Website design
- Learning Management System (not simply websites with instructor biographies, etc, but also timed release of assignments, archives of past exams, course notes, discussion boards, etc.)
- Other (please describe):

7. Website development typically include a few required items or links that a user cannot remove from their web page. Which of the following do you think should be required?
(Please check all that apply):

- News from the Registrar's office
- News from the Financial Aid office
- News from your College, School or Department
- News from the Cashier's office
- General Campus News
- None of the above
- Other: _____

8. If the UTP Online Community website offered a mix of the features listed in questions 4-7, would it make your campus life easier?

Yes No Not sure

9. Assume the campus has a limited budget that allows the implementation of one system each year. Please rank order the following systems in order of importance to you.

a. _____ Calendaring (ability to keep track of your academic and financial deadlines, class schedule, appointments, etc. through a single website)

b. _____ Financial transactions on-line (payment of fees, parking fees & tickets, bookstore transactions, etc.)

c. _____ Academic transactions on-line (requests for major/minor, request for transcripts/diplomas, check up on required courses for college/major/minor, electronic advising options, enrollment in classes, etc.)

d. _____ This UTP Online Community

e. _____ Learning Management System (not simply websites with instructor biographies, etc, but also timed release of assignments, archives of past exams, course notes, discussion boards, etc.)

f. _____ Other (please describe):

10. If you could name the UTP Online Community website, what name would you choose?

11. Do you want to add anything not covered in this questionnaire?

User name:

Date of evaluation:

Evaluation Questionnaires

Overall Reaction to the Website

1. What is the overall opinion about the website?

(Terrible) 1 2 3 4 5 *(Wonderful)*

2. Is the site easy to navigate around?

(Difficult) 1 2 3 4 5 *(Easy)*

3. Does the site provide enough information?

(Inadequate) 1 2 3 4 5 *(Adequate)*

4. What do you feel about the appearance of the interface?

(Dull) 1 2 3 4 5 *(Stimulating)*

5. What do you feel after using the site?

(Frustrating) 1 2 3 4 5 *(Satisfying)*

Website Usability

6. Overall, I am satisfied with how easy it is to use this website

(Strongly disagree) 1 2 3 4 5 *(Agree)*

7. It was simple to use this website.

(Strongly disagree) 1 2 3 4 5 *(Agree)*

8. I am able to efficiently complete my task using this website

(Strongly disagree) 1 2 3 4 5 *(Agree)*

9. I feel comfortable using this website

(Strongly disagree) 1 2 3 4 5 *(Agree)*

10. It was easy to learn to use this website

(Strongly disagree) 1 2 3 4 5 *(Agree)*

11. The website gives error messages that clearly tell me how to fix problems

UTP Community Online Evaluation

(Strongly disagree) 1 2 3 4 5 *(Agree)*

12. It is easy to find the information I need

(Strongly disagree) 1 2 3 4 5 *(Agree)*

13. The information provided for the website is easy to understand

(Strongly disagree) 1 2 3 4 5 *(Agree)*

14. The information is effective in helping me complete the tasks and scenarios

(Strongly disagree) 1 2 3 4 5 *(Agree)*

15. The organization of information on the website screens is clear

(Strongly disagree) 1 2 3 4 5 *(Agree)*

16. The interface of this website is pleasant

(Strongly disagree) 1 2 3 4 5 *(Agree)*

17. I like using the interface of this website

(Strongly disagree) 1 2 3 4 5 *(Agree)*

18. This website has all the functions and capabilities I expect it to have

(Strongly disagree) 1 2 3 4 5 *(Agree)*

Website Consistency

19. Is the assignment of color codes conventional?

1 2 3 4 5

20. Is the display format consistent?

1 2 3 4 5

21. Is the feedback consistent?

1 2 3 4 5

22. Is the format within data fields consistent?

1 2 3 4 5

23. Is the label format consistent?

1 2 3 4 5

24. Is the label location consistent?

UTP Community Online Evaluation

1 2 3 4 5

25. Is the labeling itself consistent?

1 2 3 4 5

26. Is the display orientation consistent? -- panning vs. scrolling

1 2 3 4 5

27. Is the wording consistent across displays?

1 2 3 4 5

28. Is the data display consistent with user conventions?

1 2 3 4 5

Website Learnability

29. How do you feel when learning to explore this site?

(Difficult) 1 2 3 4 5 *(Easy)*

30. Is the data grouping reasonable for easy exploring?

(Difficult) 1 2 3 4 5 *(Easy)*

31. Is the grouping of menu options logical?

(Illogical) 1 2 3 4 5 *(Logical)*

32. Can you explore new features by trial and error when navigating this site?

(Never) 1 2 3 4 5 *(Always)*

33. When using the site, is performing tasks straightforward?

(Never) 1 2 3 4 5 *(Always)*

34. Do you think the site is designed for all levels of users?

(Never) 1 2 3 4 5 *(Always)*

Screen Layout

35. Are the characters on the screen easy to read?

(Hard) 1 2 3 4 5 *(Easy)*

36. Is the organization of information easy to identify?

(Confusing) 1 2 3 4 5 *(Very Clear)*

37. Is the sequence of screens clear?

COMMENTS AND RECOMMENDATION

Website Usability

Website Consistency

Website Learnability

Screen Layout

Terminology and Website information

Thank you very much for your evaluation and comments.

Appendix 4 & 5

Pretest Result

Student	Control group (O ₃)	Experimental group (O ₁)
1	15	30
2	30	30
3	23	33
4	25	35
5	20	35
6	18	18
7	20	36
8	26	36
9	33	37
10	27	33
Total	297	323

Student	Control Group (O ₄)	Experimental Group (O ₂)
1	40	60
2	50	60
3	50	63
4	43	53
5	50	60
6	38	45
7	38	50
8	47	50
9	43	60
10	33	53
Total	432	554

Post Test Result

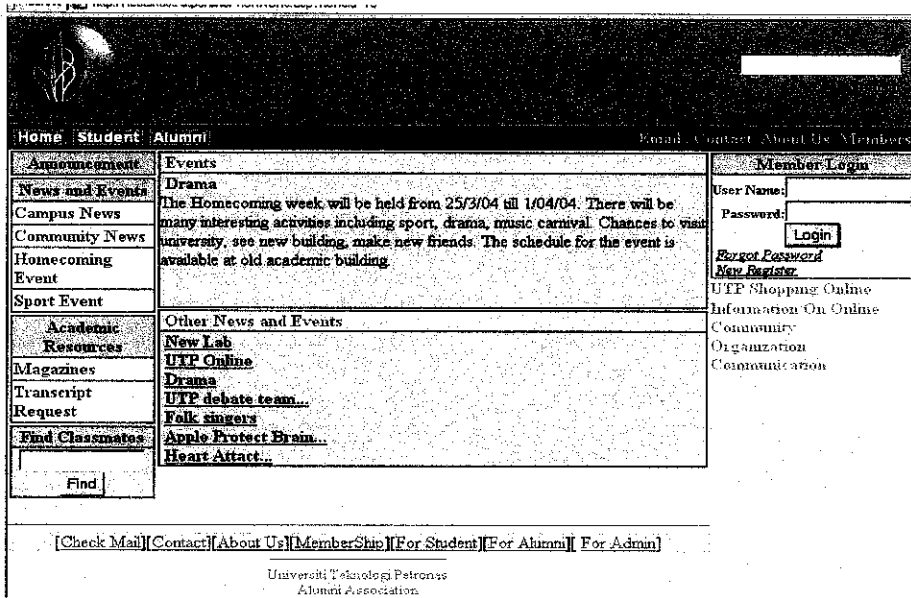


Figure 4.1 (a) Interface

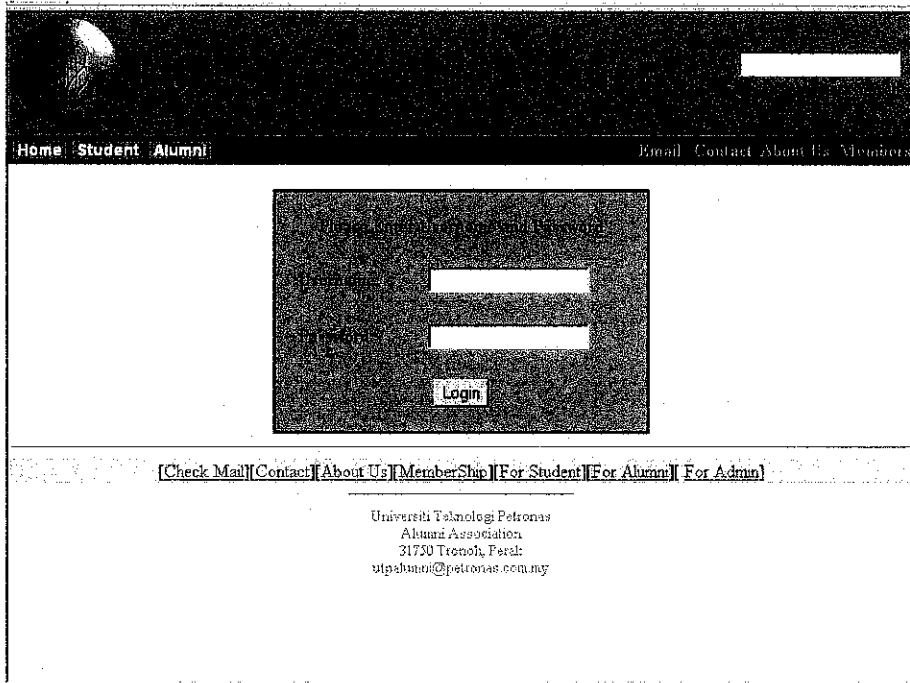


Figure 4.1 (b) Login

Home Student Alumni Email Contact About Us Members

Course Registration

Student Name: **Farilah, Yusoff**
 Student ID: **I1365**
 Program: **IT**

IT/IS

Year 1

<input type="checkbox"/> STB1022 Introduction to C++	<input type="checkbox"/> STB1122 Health And Safety Environment
<input type="checkbox"/> STB1033 Introduction to Finance	<input type="checkbox"/> STB1133 Professional Communication Skill
<input type="checkbox"/> STB1044 Business Accounting	<input type="checkbox"/> STB1144 English 100
<input type="checkbox"/> STB1055 Economic 1	<input type="checkbox"/> STB1155 English 1
<input type="checkbox"/> STB1066 Digital Electronic	<input type="checkbox"/> STB1177 Computer And Information Adge

Year 2

<input type="checkbox"/> STB2022 Economic 2	<input type="checkbox"/> STB2122 Visual Basic
<input type="checkbox"/> STB2033 Corporate Finance	<input type="checkbox"/> STB2133 Multinational Corporate Finance
<input type="checkbox"/> STB2044 Computer Organization	<input type="checkbox"/> STB2144 Operating System
<input type="checkbox"/> STB2055 Human Computer Interaction	<input type="checkbox"/> STB2155 Multimedia Project Development
<input type="checkbox"/> STB2066 Malaysian Studies	<input type="checkbox"/> STB2166 Multimedia Technology

Figure 5.4.2 (c) Course Registration

Home Student Alumni Email Contact About Us Members

Course Registration

Student Name: **Farilah, Yusoff**
 Student ID: **I1365**
 Program: **IT**

You has just selected the following courses
 (Click Submit to Register)

1. STB1022 Introduction to C++
2. STB1033 Introduction to Finance
3. STB1044 Business Accounting
4. STB1055 Economic 1
5. STB1066 Digital Electronic
6. STB1177 Computer And Information Adge

Figure 5.4.2 (d) Course Confirmation

The screenshot shows a web page with a dark header. On the left is a logo with the letters 'SB'. On the right is a search bar. Below the header, there are navigation links: 'Home', 'Student', 'Alumni', 'Email', 'Contact Us', and 'About Us'. The main content area is titled 'Course Registration' and displays the following information:

Student Name:	Fariha, Yusoff
Student ID:	I1365
Program:	IT

You have registered the following courses:

1. STB1022 Introduction to C++: already registered!
2. STB1033 Introduction to Finance: already registered!
3. STB1044 Business Accounting: successfully registered!
4. STB1055 Economic 1: successfully registered!
5. STB1066 Digital Electronic: already registered!
6. STB1177 Computer And Information Adge: already registered!

Figure 5.4.2 (e) Save Registration

Appendix 7

Minimum time taken:

No	Time taken (minute)
1	5
2	3
3	5.5
4	2
5	6
6	5

Table 3.6(a)

Max Time taken:

No	Time taken (minute)
1	6
2	6.5
3	8
4	8.5
5	11
6	12

Table 3.6(b)

Pretest Questionnaires Testing

Using the “UTP Community Online” website.

No	Year	Score (first time)	Score (second time)
1	1	30%	70%
2	1	40%	75%
3	1	45%	85%
4	1	55%	80%

Table 4.3((a): Student Testing: Year 1

Using the Conventional Approach

No	Year	Score (first time)	Score (second time)
1	1	40%	60%
2	1	38%	55%
3	1	58%	70%
4	1	45%	65%

Table 4.3((b): Student Testing: Year 1

Using Conventional Approach

No	Year	Score
1	3	60%
2	3	65%
3	3	72%
4	3	65%

Table 4.3((c): Student Testing: Year 3

Using "UTP Community Online"

No	Year	Score
1	3	80%
2	3	85%
3	3	82%
4	3	79%

Table 4.3((a): Student Testing: Year 3

Appendix 9 Project Timeline

