The effectiveness of FYPMS in increasing the quality of final year students project management

Mohammad Noor bin Ibrahim
Polytechnic Sultan Idris Shah
Sungai Lang, Selangor, Malaysia
+60332806200
mohdnoor@psis.edu.my

Noorashikin Binti Nazir
Polytechnic Sultan Idris Shah
Sungai Lang, Selangor, Malaysia
+60332806200
noorashikinnazir@psis.edu.my

Susilawaty Binti Ahmad Osman
Polytechnic Sultan Idris Shah
Sungai Lang, Selangor, Malaysia
+60332806200
susilawaty@psis.edu.my

ABSTRACT

Final Year Project Management System (FYPMS) was developed for the purpose of managing the DFT6014 Integrated Project course taken by the final semester student of Diploma in Information Technology, Polytechnic Malaysia. Course management needs to be done effectively as this course involves a large number of students and a large number of lecturers acting as supervisors and assessors. The existing management system uses a manual method, whereby all processes in the final year project management are recorded on paper. It starts with enrolling a student group for the final year project, identifying the supervisor for the student project group, verifying the student project proposal, performing the assessment and recording the scores manually. Based on the feedback obtained from the survey indicates the need to develop a web-based system known as FYPMS. This system has been implemented to assist the management and monitoring progress of final year project. Therefore, this study was conducted to identify the users' (students, project coordinators, assessors and supervisors) perceptions of the use of FYPMS. Descriptive studies were conducted to determine whether the implementation of FYPMS could meet the needs of internal user especially lecturers at JTMK. Feedback from the use of FYPMS was collected from target group users using Regular Random Techniques, where 13 lecturers and 104 students were enrolled in the DFT6014 Integrated Project course through questionnaires. Data obtained from the questionnaire were analyzed to determine respondents' feedback using software version 15.0 SPSS (Statistical Package for Social Sciences). The results are then presented in table form and interpreted using statistical mean interpretation by Landell, 1997. The findings show that the average mean for students and lecturers was at high level of interest (3.81 - 5.00 points) and the scores are 4.85 and 4.61 respectively. Therefore, it can be concluded that FYPMS is capable to improve the quality of the final year project management as well as solving the problems that existed are particularly related to the calculation of student project evaluation scores. This makes the course management and evaluation process more efficient and systematic and saves cost, time and energy.

Keywords: *Final Year Project Management System (FYPMS); Diploma in Information Technology; assessment score.*

1. INTRODUCTION

Filing is a documentation system that includes record and required information [1]. Therefore it is important that the files are managed systematically and organized in line with regulations to ensure that the records are reserved and easily accessible upon request. Failure to manage the files accordingly could affect daily tasks and negatively impact the organization.

The Final Year Project Management System (FYPMS) is an online application developed to assist the process of managing the DFT6014-Integrated Project course which is a compulsory course that is required to be taken by students of Information Technology & Communication Department (JTMK) studying Diploma in Information Technology (Digital Technology) in Polytechnic Sultan Idris Shah (PSIS). Previously, the course management is done manually and due to a few restriction, it caused difficulty. The manual system is a burden to the project supervisor because they have to manually check the marks. It takes time and tedious because the course evaluation covers several sections such as Presentation Proposal (1), Demonstration (2) , Capstone Project (1) and Final Presentation (1). The system would be able to solve the problem related to course asessments marking, marks recording and reduces calculation mistake that occurs when calculated manually.

A survey has been conducted to gather information on supervisors' current practices and problems occurring during the supervision through a set of questionnaire. Findings from this survey was analysed, and the results show that there are few problems arise in managing the final year project. Some of the problems include a long time is required to identify supervisors for a group of student, verifying project proposals and recording student's result. Thus, it's hard to manage the course since the course is taken by a huge number of students and supervised by the majority of lecturers in JTMK.

FYPMS is better than the manual system because the system is done online. Therefore, managing and evaluating could be done in an ubiquitous manner and the information gathered could be utilized to display and generate student's mark rapidly and systematically. The supervisor could also improve the monitoring process for all student's group project's implementation.

The use of FYPMS helps the supervisors to monitor the project progress effectively through online system. The students have the advantage of having a one stop center of information, submission and retrieval of feedbacks [2]. Therefore, it is easier for them to download files and upload their submissions anywhere and at any time before the due date and time. The supervisors and assessors can also download the students' submission for assessment purpose anywhere and at any time. Most importantly, the development of FYPMS is also inline with Green ICT which is a strategic move by the government to support the National Green Technology Policy [3], thus will minimize the operational cost especially usage of paper.

2. PROBLEM STATEMENT

Final year project management is important in ensuring that the project can be planned, designed and developed successfully in accordance with the established project guideline. Detailed planning and monitoring from the early stages of the project development will ensure that the project runs smoothly and achieves the stated objectives.

Existing methods used in managing the course requires a lot of time. It starts with the registration of the group of students for the final year project, identifying the supervising lecturers for the particular group, validate the student's project proposal, evaluate the student's course and record the marks manually. The process is time consuming and the group of students need to continuously meet the supervisor until the proposed project is validated. The students therefore will have to meet the supervisor beyond the class time period. The cost is also high since the students are required to print out the project title registration form until it is approved.

The management of final year projects involves multiple parties: project coordinator, supervisors, accessors and students. The project coordinator is responsible for managing the entire project journey including assigning students to supervisors, management of written reports and generate student scores. Current system requires the supervisor to manually calculated the student's mark for all assessments given. This increases the probability of inaccuracy in calculating the marks. The marks are then transferred to another form which is the Project Score Record to calculate the final score for each students. Therefore, it is crucial to ensure that the marks are accurate before the submission to the project coordinator.

Based on the feedback from the distributed survey, it was found that there was a need to develop a system that would facilitate the management and monitoring the final year project progress. A web-based final project management system needs to be developed to make it more effecient for all parties involved.

3. RESEARCH OBJECTIVE

Based on the problems stated, the objective of developing FYPMS to improve the quality of final year project is as follow:

i. To identify the lecturer's (project coordinator, supervisors and accessors) perception of the use of FYPMS in final year project management.
ii. To identify students' perceptions of the use of FYPMS in final year project management.

4. RESEARCH LITERATURE

4.1 Field of Study

In implementing student final project management, a complete management system needs to be established to improve the quality of the products produced. In addition to reviewing system development needs, the quality implementation process is also important for improving the quality of support services for their customers and users. This is to further strengthen the results of the study in order to achieve the expected objectives[4].

In information technology, there are various activities that need to be done to provide services to consumers. From the provision of infrastructure such as the provision of computer network systems, procurement of equipment such as computers and servers to the development of applications and software is a common practice[5].

Project management information system is an information system developed to assist project managers in project planning, monitoring and control of activities that occur in a student project [6]. There are currently many different types of project management information systems on the market. There are even software that can handle cost calculations, add value and generate project management reports.

Today's software development approach is more web-based because information is more easily shared and accessible anywhere as long as the computer is connected to the Internet network system. Its use is also not limited to certain software platforms. Among the following are the advantages of project management software developed on a web application. It can be achieved with a wide variety of computers without the software installation process, easy access control, multiple users and only need to install one software[7].

Good student final project management will produce projects that meet the objectives, in real time with the use of resources and financial resources. Therefore, it is closely related to the quality of management of how the project team performs their projects. teams that want to make sure their projects are quality will follow the steps and regulations that come with their project management experience, especially in the risk of project failure[8]. The risks involved can be used as opportunities in furthering the quality of the project. One of the most commonly used methods is to adopt best practices in project management.

In implementing a project to achieve the set goals and objectives, it is undeniable that unforeseen circumstances can interfere with the smooth running of the project. This will result in delays, unplanned use of resources, wasting time and energy[9]. It will even affect the ability of a group to complete their project. Project management therefore requires the planning of risk management processes to minimize or avoid any obstacles that may arise during the project. The Project Management Association states that risk is defined as a factor that can lead to failure to achieve the project objectives[10].

Based on the research conducted, the proposal to develop a student final project management software for use by all polytechnics is considered necessary to further improve the quality of service and delivery to its users. It can also train project coordinators to familiarize themselves with the best practices adopted in actual project management to ensure that each project developed can be implemented according to the schedule and meets the student's final project objectives. It will also benefit the users as well as the top management to track and monitor project progress over time to reduce the risk of failure. The rapid development of web-based applications should be utilized to facilitate access at any time and from any location by the user[11].

5. RESEARCH METHODOLOGY

5.1 Research Design

This descriptive research was conducted to determine if the implementation of FYPMS could fulfill the internal customer's need especially lecturers at JTMK, PSIS.

5.2 System Development Design

FYPMS was developed based on the requirement to manage the DFT6014 course-Integrated Project that include 4 groups of users; Project Coordinator, Supervisors, Accessors and Students.

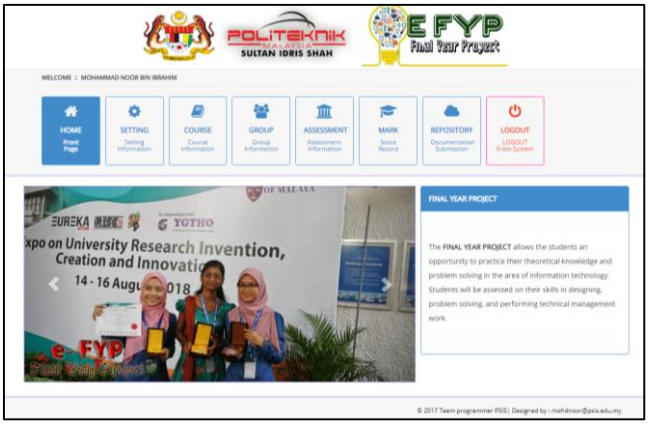

Figure 1 : Interface of the FYPMS frontpage

Figure 1 shows the interface of the FYPMS frontpage. The explanation of each function in FYPMS is as follow:

a. Project Coordinator

Acts as the administrator and his/her tasks include:

i. Set current session
ii. Set the date of the callibrated evalutions
iii. Assign Main Lecturer and the project supervisor
iv. Assign evaluaters who will asses the Proposal Presentation and Project Capstone to registered groups.
v. View document/repository bank.

b. Supervisors and Accessors

Supervising lecturers utilize FYPMS to manage only the project groups under their supervision. The function is different in comparison to Coordinating lecturer because their scope is wider. The actions that could be taken by the supervising lecturer include:

i. Insert, update and register students under their supervision
ii. View, conduct and update the assessment based on the evaluations such as Proposal Assessment, Demonstration 1 and 2, Capstone project and final presentation.
iii. View the final marks of the assessment conducted
iv. Print the overall marks (Project Score Record) for the groups under their supervision
v. View document/repository bank

c. Students

The actions that could be done include:

i. View the information related to the course such as the guidelines, course information outlines, Gantt Chart and Planner.
ii. Conduct the project registration process online by filling the Project Registration Form provided.
iii. Live view of their marks. This will indirectly assist the students to determine their level of achievement and help them in planning suitable strategy in order to improve their achievement.

The development design of FYPMS is in accordance to the guideline imposed by the Polytechnic Quality Unit where all the documents uploaded in the system follows the set standard procedure. Besides that, FYPMS applies completely the project guidelines that was standardized in all Polytechnic.

5.3 Data collection method

The feedback from FYPMS usage was collected from target group users; lecturers and students registered for DFT6014 – Integrated Project course via questionnaires. The research procedure begins with a briefing on FYPMS implementation to lecturers and students involved. The briefing was conducted at the Main Lecture Hall (DSU),PSIS where 13 lecturers and 104 students were involved. Following the briefing, the lecturers and students use the system that was demonstrated. Questionnares are distributed to gather the feedback of the respondents upon using the FYPMS. Table 1 shows the number of lecturers and students according to the user categorization sampling. The sampling is as follow

Table 1 :User categorization sampling

Num	User Category	Respondents
1	Students	104
2	Lecturers	13
	Total Respondents	117

Figure 2 shows the distribution of the respondents based on gender. Out of all the students, 55 are male and the remaining balance are female. Out of all the lecturers, 7 are male and the rest are female.

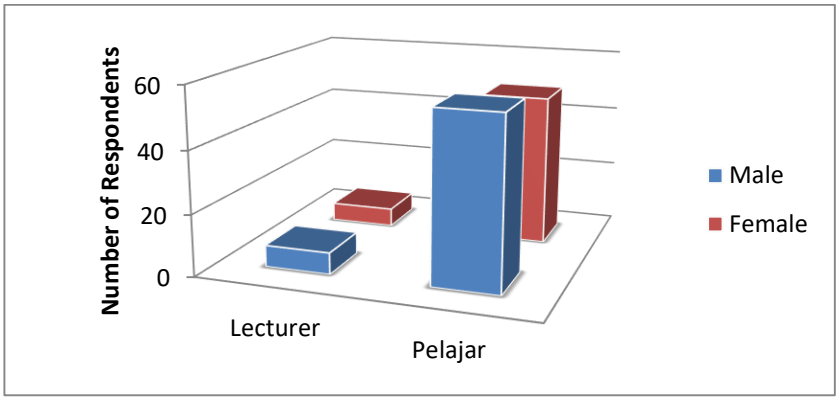

Figure 2 : Distribution of respondents based on gender

Table 2 shows the measurement for the items in the questionnaire. By using 5 point likert scale, the answers are provided and respondents are only required to sleect the most relevant answer. Meanwhile, Table 3 shows the aptitude level based on the mean score analyzed.

Table 2 : Likert Scale

Score	1	2	3	4	5
Weightage	Not satisfied	Satisfied	Good	Very Good	Excellent

Table 3 : Mean statistic level interpretation (Landell,1997)

Mean score	Inclination Level
1.00 – 2.40	Low
2.41 – 3.80	Moderate
3.81 – 5.00	High

5.4 Sampling Technique

This research uses Stratified Random Technique where all the samples gathered are based on the criteria in Table 1.

5.5 Analysis Technique

The data gathered from questionnaires are analysed to determine the respondent's feedback using SPSS (Statistical Packages for Social Sciences) version 15.0 software. The result is then presented in a table form and interpreted using the mean statistic level interpretation by [12] as represented in Table 3.

6. RESEARCH FINDINGS

Generally, there are 11 items that are evaluated by respondents which are divided into two user categories,students and lecturers. The findings are analysed and summarized based on the objectives dan research questions stated by the researcher.

Table 4 : FYPMS Usability Feedback from students

No	Item	Stongly Disagree	Disagree	Neutral	Agree	Strongly Agree	MEAN
1	FYPMS is easy for reference and usage	0%	0%	0%	45.19 %	54.81%	**4.55**
2	FYPMS makes the project management more systematic and efficient	0%	0%	0%	14.42 %	85.58%	**4.86**
3	FYPMS helps me to get information related to the DFT6014-Integrated Project course	0%	0%	8.654%	34.62 %	56.73%	**4.48**
4	FYPMS saves time, energy and cost	0%	0%	0%	66.35 %	33.65%	**4.34**
5	FYPMS reduces the burden of user	0%	0%	0%	35.58 %	64.42%	**4.64**
6	FYPMS makes it easier for me to check the continuous evaluation marks.	0%	0%	0%	65.38 %	34.62%	**4.35**
7	FYPMS avoids the error in marks calculation	0%	0%	0%	0%	100%	**5.00**
8	FYPMS makes it easier for me to gather the feedback of the project report from the supervisor.	0%	0%	0%	22.12 %	77.88%	**4.78**
9	FYPMS helps me in supervising the student's project development.	0%	0%	0%	13.46 %	86.54%	**4.87**
10	FYPMS makes it easier for me to do research on past student's technical report.	0%	0%	6.731	55.77 %	37.5%	**3.81**
11	I recommend the usage of FYPMS in the future	0%	0%	0%	0%	100%	**5.00**
						Overall Mean Average	**4.61**

Table 4 shows the part in the questionnaire that is compulsory for the 104 students to answer. The research findings show that it is reasonable for all students in JTMK, PSIS taking the DFT6014 -Integrated Project to use FYPMS. This is shown by the mean score for all the item that is rated high, between 3.81-5.00 points.

Next, the findings show that the average mean score for all 104 respondents is 4.61, which is also rated high. Based on the information, it could be summarized that all the JTMK, PSIS students are ready to use FYPMS for the DFDT6014 course.

Table 5: FYPMS Usability Feedback from Lecturers

No	Item	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	MEAN
1	FYPMS is easy for reference and usage	0%	0%	0%	30.77 %	69.23%	**4.69**
2	FYPMS makes the project management more systematic and efficient	0%	0%	0%	23.08 %	76.92%	**4.77**
3	FYPMS helps me to get information related to the DFT6014-Integrated Project course	0%	0%	0.962%	23.08 %	69.23%	**4.62**
4	FYPMS saves time, energy and cost	0%	0%	0%	0%	100%	**5.00**
5	FYPMS reduces the burden of user	0%	0%	0%	0%	100%	**5.00**
6	FYPMS makes it easier for me to give and check the continuous evaluation marks.	0%	0%	0%	15.38 %	84.62%	**5.00**
7	FYPMS avoids the error in marks calculation	0%	0%	0%	0%	100%	**5.00**
8	FYPMS makes it easier for me to provide the project report feedback	0%	0%	0%	0%	100%	**5.00**
9	FYPMS helps in supervising student's project development	0%	0%	0%	23.08 %	76.92%	**4.77**
10	FYPMS makes it easier for me to make reference to past student's technical report	0%	0%	7.692	30.77 %	61.54%	**4.54**
11	I recommend the usage of FYPMS in the future	0%	0%	0%	0%	100%	**5.00**
						Overall Mean Average	**4.85**

Table 5 refers to the section in that is compulsory for the 13 lecturer respondents to answer. Based on the findings, it proves that it is reasonable for all lecturers teaching DFT6014-Integrated Project at JTMK, PSIS to use FYPMS. This is confirmed by the mean score of all items that is rated high with the mean score at 4.85. Based on the information, it could be summarized that overall lecturers at JTMK, PSIS is ready to use FYPMS for the DFT6014 course.

6.1 Innovation Impact

There are a few positive impact that could be seen from the development of FYPMS.

a. Save time, energy and cost

By using the system, time, energy and cost could be saved. This is due to the manusl process that has converted the manual management to online, making it accessible anywhere and anytime. Students are no longer required to make an appointment with their supervisors to receive the verification for the project title, instead it could be verified online via the system. Students also do not need to print the project registration repeteadly until teir project title is verified and approved by the supervisor and coordinator.

b. Accuracy of evaluation marks

Through the system, lecturers are ony required to insert raw marks of each evaluation into the online form in the system and the system will then generate a complete Project Score Record Form with all the percentage calculated. Therefore, the usage of FYPMS could reduce the possibility of marking inaccuracy via the manual process done by supervisors.

c. No more damaged or missing forms

The system could solve the problem of damaged and missing forms. This is possible because all related documents are in the system and could be access and printed online.

d. Encourage Green ICT in task management

FYPMS system is an online system, therefore this means that most documents are accessible and could be used in electronic form (softcopy). Indirectly, this could reduce the usage of paper which is an initiative that could be carried to support Green ICT in task management.

7. CONCLUSION AND SUGGESTION

7.1 Conclusion

Based on the analysis of the initial feedback that was gathered related to the development and usage of FYPMS, it could be concluded that the system is able to create task processess and management to be more organized, easy and systematic. The use of FYPMS for the management of FYP helps the coordinator to manage the entire project process including assigning students to supervisors, management of written reports and generate student scores.

The automated scoring process in FYPMS has also successfully avoided the problem of calculating errors by supervisors and assessors. Additionally, supervisors and students can review project progress and assessment scores directly. FYPMS not only saves time, energy and cost but also reduces the burden of users. FYPMS will be fully implemented starting from December 2018 session. Hopefully the system could solve all the course management problems that had occur. The development of the system is also an initiative to assist the party involved in obtaining a better and more work quality organized besides supporing the government's desire to cultivate Green Technology in daily life.

7.2 Suggestion

a. Other Polytechnics are recommended to use FYPMS
b. A few modules could be added to strengthen FYPMS such as the Online Logbook module
c. Evaluation marks will be directly reflected in the Students Management System (SPMP)

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