

EVALUATION OF FINAL YEAR MASTER'S PROJECT COURSE LEARNING OUTCOMES IN OPEN UNIVERSITY MALAYSIA

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ABSTRACT

Learning outcomes are statements on what students should know, understand and can do upon successful completion of a course. Achievement of the learning outcomes is an important criterion for a programme to be awarded with an accreditation qualification by Malaysian Qualifications Agency (MQA). Evidence from teaching and learning evaluation needs to be justified to demonstrate that the learning outcomes have been achieved. In line with this direction, the purpose of this study is to evaluate the learning outcomes of final year master's project according to course learning outcome and learning domain determined by MQA. This evaluation is carried out by analysing supervisor's feedback on their supervised student and student feedback themselves. The survey instruments were administered for postgraduate learners in the academic session of 2018, measuring to what extent that course completion has met the learning outcomes and fulfil the learning domain skills required. To strengthen the evidence, result obtained from master's project report awarded by supervisors and reviewers were compared according to report chapters, programme and learning outcomes perceived. The findings were discussed to highlight the concern, strength and weakness from the evaluation made. Several recommendations for continuous improvement and support were proposed to influence the quality of the course and achievement of the learning outcomes.

Keywords: *Course Learning Outcomes, Final Year, Master Project, Postgraduate Learners, Distance Education*

INTRODUCTION

Learning outcomes should be constantly evaluated on its achievement so that continuous improvement could be implemented. This process is to ensure that the graduates are qualified and meet the criteria set by the department and the university. There are several ways to evaluate learning outcome achievement based on certain courses like industrial training, final year project, problem based learning and final examination.

In line with this direction, final year master's project seems fit to showcase learner's knowledge which they have acquired over the duration of the whole course. The course that need to carry out independently goes beyond than just remembering facts but promotes higher forms of thinking such as evaluating concepts, processes, procedures, principles, performing case studies, producing project reports and giving presentations. Successful completion of the course is crucial to demonstrate learner's ability to grasp a wide range of knowledge and skills learnt during the programme, ability to research

an intellectual problem and writing a report. Furthermore, the most crucial aspect is that the course must be able to fulfil all the evaluation components determined by Malaysia Qualification Agency (MQA).

Therefore, the current study seeks to evaluate the learning outcomes of final year master's project according to course learning outcome and learning domain required by MQA using reflection, self-assessment through a survey and direct assessment through scoring marks awarded. The aim of this is to contribute towards the quality of the course in this distance learning education and improve the achievement of learning outcomes determined.

LITERATURE REVIEW

As part of fulfilment of graduation requirements, postgraduate learners in Cluster of Applied Sciences (CAS), Open University Malaysia need to carry out final year Master's Project (MP) course independently over a period of two semesters or eight months in their final year of study. The course objectives are to demonstrate a wide range of skills learned during course of study by producing a report that conform to the agreed cluster standard, to produce multidisciplinary research through the integration of material learned in several courses, to develop learners with problem solving and report writing skill. The project report submitted need to be structured according to five chapters which are introduction, literature review, methodology, findings and discussion and conclusion. In the aspect of grades, course counts for 15% weightage from overall postgraduate program.

A learning outcome is a statement referring to the actions student perform and uses action verb to describe the course outcome (Larson, 2017). The learning outcome in the MP course is to clearly highlight the importance on what the student should be able to do, know or values upon successful completion of the course. It is the primary documentation in the implementation of any academic programme. In addition to CLO, programme learning outcome, assessment criteria were also included as a guidelines. The MP course is offered throughout the postgraduate programme in the cluster with almost the same structure of course content but differences in the implementation fields. In due to this, a common CLO was established to be relevant across CAS programme for standardisation monitoring and assessment.

CLO should be measurable and observable via cognitive, psychomotor and affective learning domains. In other words, course learning outcomes should reflect essential knowledge, skills and attitudes and finally, represent the minimum performances that must be achieved to successfully complete a course. Thus the CLO defined need to be aligned with learning domain. Learning domains or some referred as learning outcome domains may be thought of as learning categories. There are three domains of learning: First, the cognitive domain involves knowledge and the development of intellectual skills (Anderson, Krathwohl et al., 2001). This includes the recall or recognition of specific facts, procedural patterns, and concepts that serve in the development of intellectual abilities and skills.

Affective Learning give focuses on growth in feelings, values, appreciation, motivation and attitudes (Krathwohl, Bloom et al., 1956). Krathwohl et al. (1956) describe five levels of internalization that are receiving, responding, valuing, organizing, and characterization by a value complex. As a value moves up these levels it is considered to be more internalized. Savickiene (2010) highlights teaching and learning focusing in affective domain must be taken seriously in the evaluation process as the ongoing economic restructuring, globalisation and development of technologies require specific attitudes and values toward the nowadays changes. Meanwhile, the third learning domain is about psychomotor skills: This would include physical movement, coordination and use of the motor-skill areas. These might focus on speed and efficiency, precision, procedures or techniques in execution (Dave, 1970).

The learning domain is considered in the evaluation so that the skill development required in the program offered have been addressed. The skills identified are Knowledge and understanding skill, Cognitive skill, Practical skill, Interpersonal skill, communication skills, digital skills, numeracy skill,

Leadership skill, Personal and entrepreneurial skill, Ethics and Professionalism. The formation of the skill used in this study have been defined according to Malaysia Qualification Framework (MQF) 2nd edition document. The MQF was established to illustrate all levels of higher education in Malaysia and serve as a national reference point for all Malaysian qualifications. This document was prepared by Malaysian Qualifications Agency (MQA) which is the main quality assurance and accrediting body and has the responsibility of assuring the quality of both public and private higher education programmes in Malaysia. Table 1 indicates the mapping the CLO with the learning domain and course components.

Table 1: Mapping the CLO, Learning Domains and Course Components

Course Learning Outcomes (CLO)	Learning Domain	Course Components
CLO1. Develop research problem and objectives in the relevant field	Knowledge and understanding skill Personal and entrepreneurial skill	Chapter 1 - Introduction <ul style="list-style-type: none"> • Research Background • Problem Statement • Research Objectives • Research Questions/ (Hypotheses) • Significance of the Research
CLO2. Review related literature using appropriate resources in the relevant field	Interpersonal skill, Cognitive skill	Chapter 2 - Literature Review <ul style="list-style-type: none"> • Theoretical Framework • Conceptual Framework
CLO3. Design appropriate research methods to address stated objectives	Leadership skill, Practical skill	Chapter 3 - Methodology <ul style="list-style-type: none"> • Research Design • Data Collection Method • Data Analysis Method
CLO4. Discuss the research findings based on collected data	Digital skills, Numeracy skill	Chapter 4 Data Analysis and Result Chapter 5 Discussion and Conclusion
CLO5. Conduct the research with good communication, creative, ethical, professional and independent throughout the study	Communication skills Ethics and Professionalism	Oral Presentation <ul style="list-style-type: none"> • Verbal • Non-verbal

RESEARCH METHOD

The aim of this study is to evaluate the final year master's project (MP) course learning outcomes. The evaluation is carried out through the survey feedback from the supervisor and learners as well as the scoring marks awarded through the final report and oral presentation assessed by the supervisors and reviewers. The survey feedback, administered to postgraduate learners of Open University Malaysia (OUM) in the Cluster of Applied Sciences, who have successfully completed and submitted their final year master's project in academic session of 2018 that accumulated to 48 learners. This restriction is based to those who have experienced writing the final project successfully and not in the early stage of the course.

This survey instrument was designed to gain feedback on demographic characteristics of participants, learning outcomes, learning outcome domains and final year project learning experiences gained throughout the course. This survey feedback was also circulated to the MP's supervisor to evaluate their supervised learner's in the capacity to meet the course learning outcomes, learning domain as well as other relevant information needed such as supervision challenges and suggestion for further improvement of the course. Participants were rest assured of the confidentiality of individual response during the conduct of study. The survey result was analysed in the form of descriptive statistics and thematic analysis. In addition, scoring marks awarded through the final report and final oral presentation from the supervisors and reviewers as the direct assessment was included to provide a real picture of the course achievements.

RESULT AND DISCUSSION

The findings of this paper are discussed in relation to the survey instrument from the learners and supervisors and the scoring marks given through the MP report and oral presentation from supervisors and reviewers. Thus, the first section highlights the findings from the survey and the latter describes the findings from scoring marks awarded.

Survey Perception

The survey findings from learner's perspectives are presented into four sections namely participants characteristic, learning outcomes, learning domain and final year project learning experience.

Participant Characteristic

Total of forty eight participants responded to six demographic questions which includes: gender, age academic programme, sector, working experience and employment status.

Table 2: Demographic of Participant Characteristics

<i>Variable</i>	<i>Description</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Gender	Male	37	77.1
	Female	11	22.9
Age	<=30years	3	6.3
	31-39years	22	45.8
	40-49years	16	33.3
	>=50years	7	14.6
	Academic Programme	MOSHRM	26
Sector	MPM	10	20.8
	MQM	7	14.6
	MFM	1	2.1
	MIT	3	6.3
	MESM	1	2.1
	Private	38	79.2
	Government	5	10.4
	GLC	5	10.4

Working Experience	<=5 years	5	10.4
	6-10 years	7	14.6
	11-15 years	18	37.5
	>=16 years	18	37.5
Employment status	Employed	41	85.4
	Self	4	8.3
	Employed		
	Unemployed	3	6.3

Based on the descriptive data in Table 2, it indicates that majority of the participants successfully submitted their MP project respectively from the programme of Master of Occupational Safety and Health Risk Management (MOSHRM) (54%), Master of Project Management (MPM) (21%), Master of Quality Management (MQM) (15%), Master of Facility Management (MFM) (2%), Master of Information Technology (MIT) (6%), Master of Environmental Sustainability Management (MESM) (2%).

Male learner's dominant by 77% as compared to female learners (23%) who completed the Master's Project in three semesters in the year 2018 ranging from the age 31-39 years (46%), 40-49 years (33%), more than 50 years (15%) and less than 3 years (5%). 79% of the learners are currently working in the private sector while remaining from the government and Government Link Companies (GLC). The results indicate that majority of the learners have vast working experience more than 16 years (37.5%) between 11 to 15 years (37.5%), between 6 to 10 years (15%) and less than 5 years (10%) in the area of oil and gas, manufacturing, information technology, construction and medical. Most of the postgraduate learners hold the management position in their respective field.

Course Learning Outcomes (CLO)

In general, findings in CLO achievement from the six programme offered in cluster are presented in Table 3. It is interesting to note that, achievements perception from the supervisor to their supervised student are higher compared to the learners themselves. This indicates that the supervisor perceived that their supervised learners were competent to conduct the MP course studied. One factor that contributes to the supervisor's high perception is due to the adult learner's background that are more benefitted from the experience and communication skill gained through their working line.

Based on the learners' perspective of the course learning outcomes, the research methods (CLO3), discussion and data analysis(CLO4) found to be the highest means followed by conduct the research with good communication, creative and ethical professional and independent throughout the study (CLO5), review literatures (CLO2) and develop research problem and objectives (CLO1). The lowest mean value from CLO1 that require learners to formulate research problem, objectives, question or hypotheses is a typical problem for any learners especially in distance education setting. To kick-start the project will be always the hardest but once they able to grasp the idea, they will get better in writing. However, further improvement is needed to increase the mean value of CLO perception from the learner's perspective to be at least on par or higher with their supervisor perception.

Table 3: Course Learning Outcomes

Course Learning Outcomes (CLO)	Learner's Feedback Mean	Learner's Standard Deviation	Supervisor's Feedback Mean	Supervisor's Standard Deviation
CLO1. Develop research problem and objectives in the relevant field	3.88	0.489	4.09	0.668
CLO2. Review related literature using appropriate resources in the relevant field	3.90	0.592	3.97	0.717
CLO3. Design appropriate research methods to address stated objectives	3.94	0.561	3.85	0.610
CLO4. Discuss the research findings based on collected data	3.94	0.561	4.12	0.640
CLO5. Conduct the research with good communication, creative, ethical, professional and independent throughout the study	3.92	0.613	4.21	0.641

Learning Domain

The learning domain as in Table 4 is considered in the evaluation so that the skills required in the MP course are addressed. Overall, the achievement of learning domains is higher compared to CLO achievement. Similar with CLO findings, achievements of learning domain perception from the supervisor to their supervised student are higher compared to the learners themselves. This indicates that the supervisor perceived that their supervised learners have adequate skills to conduct the MP course. The highest skill score with mean value 4.47 given by the supervisors highlight on the ethics and professionalism. This finding also in the agreement with the learner's perception stated the highest mean value 4.23 on the ethics and professionalism. These similarities can be explained due to adult learners that are more exposed to corporate standards of behaviour is expected to be more professional and ethical. Meanwhile the lowest mean value that are consistent between supervisors (3.94) and learners (3.83) are on the numeracy skill. These agreements may be explained due to the difficulty experienced by learners particularly when analysing and interpreting their collected project data.

Table 4: Learning Domain Skills

Skills	Learner's Feedback (Mean)	Learner's Standard Deviation	Supervisor's Feedback (Mean)	Supervisor's Standard Deviation
Knowledge and understanding skill	4.06	0.480	4.18	0.626
Cognitive skill	4.00	0.546	4.09	0.621
Practical skill	3.98	0.601	4.06	0.694
Interpersonal skill	4.10	0.592	4.38	0.604
Communication skill	4.13	0.606	4.29	0.676
Digital skill	3.98	0.601	4.18	0.673
Numeracy skill	3.83	0.519	3.94	0.694
Leadership skill	4.06	0.598	4.24	0.654
Personal and entrepreneurial skill	3.98	0.565	4.18	0.521
Ethics and professionalism	4.23	0.592	4.47	0.507

Learning Experience and Challenges

In the responses to the open-ended survey, all participants reported entirely positive views that working on the MP course expose them having the experiences conducting research, writing academically, enhance critical thinking and problem-solving skill. Learners highlight several challenges encountered while working the MP. Among the concern raise are the time constraint working while learning, difficulty in academic writing particularly in formulation of research problem, writing the literature review and interpreting collected data. In addition, another concern to address are on the need to learn statistical software for data analysis writing and pushing the commitment to finish the course within the time frame.

In the supervisor's perspective responding to the challenges encountered while supervising the student working their MP course. They raise the concern on the delay of completion are due to many reasons such as limited time, work commitment and research writing skill. However, time limitation appeared to be the most common reason since all learners are adult and working while learning.

Suggestion for Improvement

Overall, learners indicate that they need continuous project writing workshop such as statistical analysis and literature review writing. In addition, they also in need for supportive administrative matters for smooth operation process between learners and executive in charge. The same issues addressed by learners are also highlighted by the supervisors such as the need for continuous research method, data analysis and research writing workshop. Other concerns are raised such as the need for formal introduction session arranged by the cluster to establish a link for the research work between potential supervisors and learners. In addition, a briefing session in a semester ahead before actual registration of MP course are highly recommended for the awareness, guidelines and research area to be explored. Strict monitoring also can be helpful to assist learners to finish the MP within schedule while establishing good communication with their supervisor. It is hopes that these suggestions can significantly influence the quality of the MP course for its success or failure.

Scoring Marks

The finding to show real picture CLO achievement is best represented through the scoring marks awarded. Thus, a detail breakdown between the chapters in the MP report, programme and mark awarded by the supervisor and reviewer are highlighted as in Table 5. below.

In the perspective of supervisors, the finding shows that the lowest scoring mark compared to other chapters given is in the Chapter 1 with 69.6 percentage on the MESM programme. However, this finding can't be concluded for all the programme that has been assessed since MESM has only one student that submitted the report. The same goes with the second lowest score from the MFM programme, only one student submitted the report too. Even though that is the case, Chapter 1 still represent as the lowest scored marks from MOSHRM and MQM programme. This finding is also align with Table 3. which also indicates the same result on lowest achievements on the first CLO which represented in writing through Chapter 1 from learner's feedback survey. Highest scoring marks perceived by supervisor is on the Chapter 3 with 87.5 percentage in the MIT programme. This finding is as expected for the MIT programme, as the research methods in the Chapter 3 is very much focus on system designing and development method. Failure to know the method, learners will have difficulty in developing the system. Meanwhile for the rest of the programme, the research method is very much based on survey and interview approach.

Table 5: Master’s Project Scoring Marks from Supervisor (SV) and Reviewer (RW)

Programme	Descriptive Statistics – Scoring Marks								
	Chapter 1		Chapter 2		Chapter 3		Chapter 4 and 5		Oral Presentation
	SV	RW	SV	RW	SV	RW	SV	RW	RW
MOSHRM	74.68	68.26	77.71	51.07	77.96	63.11	75.25	63.00	63.84
MPM	80.35	69.50	78.09	64.60	76.26	74.00	76.84	67.67	76.00
MQM	75.44	60.00	82.17	66.71	82.12	62.91	75.52	67.67	64.28
MFM	74.00	70.00	75.00	60.00	75.00	66.70	71.00	60.00	50.00
MIT	82.63	78.33	77.16	53.33	87.50	73.23	77.66	71.23	75.00
MESM	69.60	75.00	75.00	40.00	75.00	40.00	73.00	57.00	50.00

Based on the perspective of reviewer view, the lowest scoring marks awarded is in the Chapter 2 with 51.1 percentage is in the MOSHRM programme. This is due to inability of learners to identify and analyse research literature. Evaluation of Chapter 2 is devoted to the assessment of the literature review by focusing on the learner’s ability to orderly organize the ideas, make an analysis on previous studies and critically provide comments to the literatures. Achieving the lowest of score data showed some room for improvement in MP report in order to improve the abilities of students in the literature study. Highest scoring mark perceived by the reviewer is on the Chapter 1 with 78.3 percentage for the MIT programme. This is justifiable as learners who are proposing for the improvement on the existing system for their MP course are much easier to define the background, problem and objectives as they are very familiar on the system usage compared to other learners who need to do research and review new area of studies.

Meanwhile, scoring marks on the oral presentation in the last column are based on verbal (clarity, concise, pronunciation, grammatical structure) and non-verbal (eye-contact, posture, tone, gesture, appearance) cues. The results of this study indicates that the lowest scoring marks are from MFM and MESM. As highlighted earlier only one student submitted the report for each of the programme, thus, scoring data from MOSHRM programme with 63.84 percentage is preferred to represent this assessment. In general, the scoring marks of oral presentation has passed 50% of passing rate, however it is still below of 80% percentage to gain grade A marks. This finding may be viewed as room for improvement to further increase the oral presentation skill among learners.

Another interesting finding to note, that there is big difference on the scoring marks awarded between supervisors and reviewers. This contradictory result may be due to anticipation of supervisors are more lenient to award the marks to their supervised learners, as they have supervised their learner for several semesters of studies. Meanwhile, reviewers will only get to meet the student during the oral presentation. It is important to highlight too that supervisor play a major role in the weightage of MP report which contribute to 70% compared to reviewer that is only 30% from the overall score given.

To conclude the finding and discussion in this section, the evaluation through scoring marks should provide a real picture of the course achievements. A higher marks awarded by the supervisors and reviewers to each student means greater success for the student in grasping the course learning outcomes. However, evaluation of perceived learning outcomes emphasizes the importance of reflection and self-assessment. Learning will be easier and holistic when learners understand what goal they are trying to achieve. Supervisors and lecturers in the cluster should continuously help learners in clarifying the intended learning as the lessons unfold. Eventually, it is expected that learners be able to direct their own learning.

CONCLUSION

The aim of this study is to evaluate the final year master's project course learning outcomes. The evaluation is carried out through the survey feedback and scoring marks awarded through the final report and oral presentation. The direct evaluation through scoring marks provide a real picture of the course achievements. A higher marks awarded by the supervisors and reviewers to each student means greater success for the student in grasping the course learning outcomes. However, evaluation of perceived learning outcomes emphasizes the importance of reflection and self-assessment. Also, it can be concluded that there are slight differences from feedback survey compared to scoring marks methods show that the current evaluation process that being used in the course is very effective in reflecting the learner's understanding on their learning achievement. Learning will be easier and holistic when learners understand what goal they are trying to achieve to the desired learning outcomes. In addition, a few recommendations for improvement of the evaluation process are proposed in this study particularly in restructuring the existing evaluation process in the course by taking the consideration of the mapping used in this study. Moreover, continuous support from all parties involve are expected in achieving the intended learning outcome as the lessons unfold for learners to easily manage their own learning pace.

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