



Why did Medical Graduates Appreciate Mentored Student Project? Perspectives of Two Theories

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Authors' contributions

This work was carried out in collaboration among all authors. Author SM designed the study, performed the qualitative analysis, wrote the protocol and wrote the first draft of the manuscript. Authors MNNH and HHKS contributed to the manuscript writing up. Author SP managed the literature searches. Author ABLA prepared the final manuscript. All authors read and approved the final manuscript.

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ABSTRACT

Background: Medical doctors have to develop in professionalism in addition to become competent in clinical skills. Therefore, educators in Melaka Manipal Medical College have inculcated personal and professional development (PPD) projects into medical curriculums. The projects were in the form of Role Plays/Narratives/Creative writing and Mentored Student Project (MSP). Short terms outcomes of the projects were evaluated, and the research disclosed the positive effect of all PPDs on medical students. However, the long-term effect was yet to be evaluated. The findings of the previous study have not explained why those PPD projects are successful. While twenty fresh medical graduates were asked to reflect on one best learning experience as a qualitative evaluation of the programme, students' appreciation of MSP disclosed. This study aimed to explore the students' reflection to identify the reasons for their appreciation of MSP and the long-term effect of it.

Study Design: Qualitative research.

Methodology: Three reflective writings by fresh graduates were analyzed using the interpretive phenomenological analysis (IPA) approach. Students expressed their conscious perceptions about

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MSP in the form of words in their reflections. The researcher carefully read the reflections and interpret the words and phrases to catch the students' perception of MSP.

Results: The qualitative analysis revealed the reasons for participating in MSP and their appreciation about MSP. The main reason for students' participation in MSP was to fulfill the requirement of the medical programme although one student mentioned that she was interested in MSP due to the nature of MSP. Four themes were formulated as reasons for their appreciation of MSP: (1) having an opportunity to choose their research topic, (2) the presence of a mentor to guide each student group, (3) opportunity for the poster presentation on results of MSP and (4) satisfaction with the overall outcome of the MSP.

Conclusion: This study highlights the long-term impacts of MSP on students which matched with the expected learning outcomes set by Ministry of Education Malaysia. The analysis disclosed not only the outcome but also the process of MSP contribute for its success.

Keywords: Mentored student project; interpretive phenomenological analysis; qualitative study; self determination theory of motivation; controlled value theories.

1. INTRODUCTION

Medical doctors need to develop in professionalism in addition to become competent in clinical skills [1]. Therefore, educators in Melaka Manipal Medical College have inculcated Personal and Professional Development (PPD) projects into medical curriculums [2,3]. The projects were in the form of Role Plays/Narratives/Creative Writing [2] and Mentored Student Project (MSP) [3].

All PPD projects were evaluated by both quantitative and qualitative methods just after the completion of the projects and short terms outcomes were disclosed and most of them were positive [2,3]. However, the long-term effect of MSP was not evaluated in that studies and the findings have not explained why MSP was successful. In addition, the evaluators were the faculty thus the evaluators and student's relation might influence the responses. Medical graduates, on the other hand, were not controlled over by the designers and implementers of PPD projects thus assumed to give more honest responses. In addition, medical graduates must have more critical thinking than medical students. Therefore, the researchers did detail analysis of medical graduates' voluntary expressions on their appreciation for MSP.

2. METHODS

The initial study includes 20 consented medical graduates who were identified by faculty as capable to write reflections during their clinical years. They were asked to reflect on and write the best learning activity during the undergraduate medical programme. Among them, five students mentioned Mentored Student Project (MSP) as the best learning opportunity.

However, two graduates' reflection just mentioned MSP in their best learning opportunities. Therefore, three reflections with detail accounts on the project were analyzed using Interpretive Phenomenological Analysis (IPA) approach as it is a powerful tool to provide significant information even from one case study [4]. Interpretive Phenomenological Analysis (IPA) is a well-known qualitative approach to explore people's experiences [5]. IPA based on three theoretical backgrounds namely phenomenology, hermeneutics and ideography. Phenomenology is a study of people's experiences in the form of their conscious perception. Peoples' perceptions must be interpreted from their words and the context thus hermeneutic theories of interpretation of texts, words and human behavior involved in IPA. Ideography taking into account the detail phenomena as well as how it was interpreted by a particular person in a certain context thus relevant to IPA.

Medical graduates had experiences of Mentored Student Projects (MSP) and they critically analysed their experiences of MSP while writing reflections, thus their conscious perception of MSP appear in their writings. The researchers read the first reflective writing several times to get an overview of the participant's perception of their experiences with MSP without influences of the researcher's theoretical knowledge [5,6]. Each phrase of the reflective writing was given a code based on the interpretation of the researcher on the graduates' perception disclosed from that phrase. Later, the reflection was re-read and compared with the codes, also re-coded whenever necessary. Later, themes were formed for the first reflective account. After analysis of the first one, the other two reflections were analysed one after another in a similar way.

Themes were further explained by the motivation theories.

3. RESULTS

The three reflective accounts were written by one lady and two gentlemen medical graduates. Their ethnicities were Malay, Indian and Chinese. Although the participants were medical graduates, their reflection disclosed their experiences as a medical student, thus codes and themes were formulated accordingly.

Analysis answered two questions:

- Why did medical students participate in MSP?
- Why did medical students express that MSP was the best learning activity?

3.1 Why did Medical Students Participate in MSP?

1. To fulfill the requirement
2. It is different from the lecture

Two themes were formed as the reasons for medical student's participation in MSP. The first theme is to fulfill the requirement of the undergraduate medical programme, and the second theme is the interest in the learning activity that is different from the lecture (Table 1).

Although there were two themes related to reasons for participation it was obvious that the main reason was to fulfill the requirement to sit for the final exam of the 2nd-year University exam.

3.2 Why did the Medical Students Express that MSP was the Best Learning Activity?

Four themes can be formulated as the answers to the above research questions. They are:

1. Having an opportunity to choose their research topic.
2. The presence of a mentor to guide each student group.
3. Opportunity for the poster presentation on the results of MSP.
4. Satisfaction with the overall outcome of the MSP.

According to the above themes, Medical graduates expressed their appreciation for both outcomes and the process of MSP. The MSP

process they appreciated are 1. The assignment of mentor that provides competency support to them; 2. The students are allowed to choose a topic by themselves. 3. The students appreciate the arrangement for the dissemination of the project findings in front of the seniors.

3.2.1 Having an opportunity for the medical student to choose their research topic

When the student was allowed to choose their MSP topic, they engaged in learning activity like reading books, searching the internet, sharing information among group members, discussion and reaching to the consensus on a topic of their MSP. The student can choose a topic of their interest, thus, their interest in the research topic further facilitates their motivation in doing research. Emotion/satisfaction with the activity during the planning and implementation stage was also revealed in the reflection.

The following extracts showed their perception of MSP and engagement in learning activities.

"We browse through multiple websites to search for data and information which will help us in our project. After finalized, we exchanged information among ourselves and decided on this topic. (line 7, 8 & 9 of the Reflection 2).

"This MSP made us do research, read from different books, surf the net in order to gather information. I like this opportunity because it made me read many books and do research as the topic was so interesting" (line 5 & 6 of the Reflection 3).

3.2.2 The presence of a mentor to guide each student group

All three medical graduates reflected and appreciated the guidance of the mentor, interaction with the mentor to plan for the research and to seek guidance whenever necessary. The activity improved the lecturer-student relationship thus the student still remembers the mentors' name. Proper division of tasks, fruitful discussions among the group members and the mentor lead to satisfaction with the activity during the planning and implementation stage. The following extracts are the evidence.

"I like this learning opportunity as I learnt something new, worked well with my group members, divided our duties, and interacted with our mentor Dr.... to obtain input and guidance

regarding our study". (line 16 & 17 of the Reflection 1).

"In this project, 4 of us in a group under the guidance of our mentor Dr.... sat down and plan for the project. We discussed and read on various articles online". (line 4 of the Reflection 2).

3.2.3 Opportunity for poster presentation on results of MSP

The medical graduate reflected and expressed their feeling of being privileged to participate in the poster presentation because significant people like Dean, deputy Dean and lecturers attended the presentation. It is also challenging to answer the questions by the audience.

"After preparation for almost 2 months, finally, we had to present our poster in a formal poster presentation... Other medical students were also very enthusiastic in preparing and presenting their poster" (line 13 & 16 of Reflection 2).

"MSP presentation was done in the present [presence] of College Dean and Associate Dean along with lecturers and doctors from different places. During this event, many different questions were thrown into me from the different people and I answered most of them with confidence as I had enough knowledge about it; because I had done enough reading and did thorough research on the topic" (line 9, 10,11 & 12 of the Reflection 3).

"Other students also like this opportunity because it is challenging and interesting for them" (line 13 of the Reflection 3).

From the above extracts of the medical graduates' reflections, their emotions and satisfaction during the MSP were obvious.

3.2.4 Satisfaction with the overall outcome of the MSP

The medical graduate reflected and expressed their satisfaction with the overall outcome of the

MSP. One student wrote: "All the hard work paid off well and we were all happy with the outcome and learnt a lot". (Line 13 Reflection 2).

There were three sub-themes related to student's satisfaction:

- Transformed the student
- Value of teamwork
- Gained extensive knowledge

3.2.4.1 Transformed the student

One medical graduate said MSP transformed her to be an open-minded person. The following phrases are extracted from her reflection.

"I was more open-minded regarding my studies in Manipal as I [realized] not only I had to study the theory components of the syllabus but I need to participate in activities like MSP" (line 10 of the Reflection 1).

3.2.4.2 Value of teamwork

Another medical graduate mentioned an insight into the value of teamwork and the knowledge and skills he gained from MSP. He wrote:

"It [MSP] has taught me about health issues in India, government policies of India and also teamwork is the secret to success in a group work". (line 14 of the Reflection 2).

Similarly, one student wrote: "This informative e-learning tool (MSP) further teaches us as future doctors to work together as groups for the same goal. Building bonds as we go along. (17 & 18 of the Reflection 3).

3.2.4.3 Gained extensive knowledge

Another student commented that MSP is a properly designed learning activity to gain extensive knowledge of the different subject areas.

Table 1. Themes and codes of the reasons for participating in MSP

Theme	Quotes
To fulfill the requirement	"MSP was a compulsory project" (line 2 of Reflection 2) "I participated in MSP because it was one of the criteria to sit for my 2nd-year university examination" (line 2 & 3 of Reflection 3)
It is different from the lecture	"It was a compulsory project and I was very excited to learn something different from what I was studying in lectures" (line 4 & 5 of the Reflection 1)

“MSP is designed not only to gain extensive knowledge on a topic of choice, but also to allow everyone to participate & gain insight into many other projects as well.” (line 15 & 16 of the Reflection 3).

4. DISCUSSION

Benefit of MSP: This study supports the short-term outcome of MSP mentioned by Devi et al.’s study [3] and also shows long-term impact on medical graduates such as transformed to an open-minded person, appreciation on the benefit of teamwork, development of team spirit, friendship between medical graduates.

The two reasons of medical students to participate in the MSP were explained by the Self-determination theory of motivation [7,8]. Self-determination theory (SDT) is a theory of motivation in learners. Motivation could be either extrinsic or intrinsic. Extrinsic motivation is driven by the external factors such as rewards, or punishments. Meanwhile, intrinsic motivation is driven by the learner’s interest, or inherent satisfaction [7]. SDT asserted that a person must fulfill three psychological needs namely autonomy needs, competency needs, and relatedness needs to develop intrinsic motivation [8]. Extrinsic motivation can be transformed as

intrinsic motivation through the internalisation process [7,9].

The first theme, to fulfill the requirement is considered as extrinsic motivation as it is influenced by external regulation. The second one, interest in the nature of learning activity, is considered as intrinsic motivation as it is regulated by the internal drive. However, all three reflections disclosed that extrinsic motivation leads to initial participation. Later, they satisfied with the activity and motivated to participate further thus it became their best learning activity. It is called an internalization process [9]. It also shows the importance of external motivators for the successful initiation and implementation of a new learning activity.

The factors that influence the medical graduates’ appraisal of MSP as the best learning opportunity can be explained by two theories namely Self Determination Theory of Motivation (SDT) [7,8] and control-value theory [10-13] (See Fig. 1).

The reflection of MSP in this research provides evidence that students are more motivated to do the project as they are allowed to choose their own topics. AMEE guide 59 mentioned that by allowing the student to choose their research

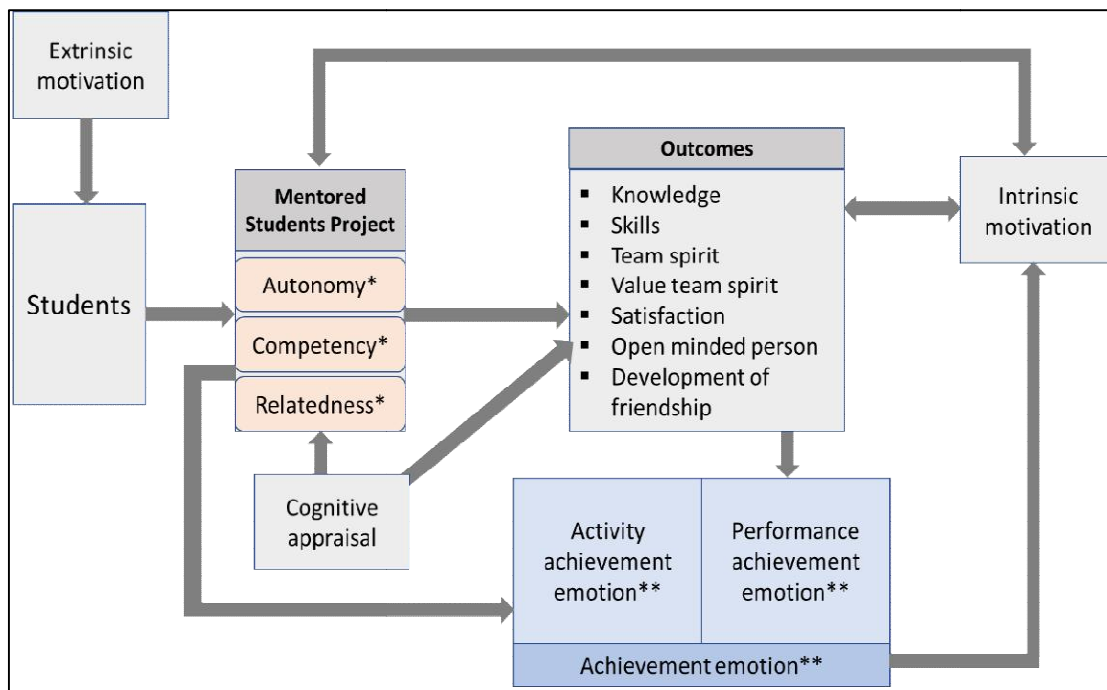


Fig. 1. Reasons for the success of MSP explained by two motivation theories
 * Self Determination Theory of Motivation, ** Control-value theory

topic, their psychological needs called autonomy needs was fulfilled [7]. The presence of a mentor makes students interact with the mentor and get the input for their work. That means they have competency support from mentor thus competency needs fulfilled [7] leading to motivation and satisfaction. The good support of the mentor and cooperation of the group members the study participants got are the opposite of hindering factors for the success of MSP mentioned in Devi et al. [3]. The opportunity for poster presentation in front of the Dean, Deputy Dean and lectures made them feel related to the significant person in the institutions. Thus, their relatedness psychological need was fulfilled to develop intrinsic motivation. Intrinsic motivation is a quality motivation leading to the good learning outcome [14]. The students' appraisal of MSP can be explained by controlled value theory too. Control-value theory is an integrative approach to understand the emotions of the learner in the teaching-learning process [10]. Control appraisal is the learner's cognitive appraisal of their self-perceived controllability to the activities and outcomes such as self-efficacy, expectancies and competency perceptions [10]. Meanwhile, value appraisal is the learner's appraisal on the subjective value or importance of that activity and outcome such as usefulness or importance [10]. These control and value cognitive appraisals are linked to the achievement emotions [10]. Achievement emotions are derived from the learners' achievement in their activities or outcomes of their performances, which usually present in the academic and clinical settings in the medical education [10]. In summary, Control-Value theory pointed out that the learners' cautious appraisal on the control and value of the learning activity leads achievement emotion [10-13]. This achievement emotion further influences the learning behavior and intrinsic motivations [10-13].

For example, the student's expression "it made me read many books and do research as the topic was so interesting" indicates their positive emotion during the learning activity that leads to intrinsic motivation to learn further. It can be called as an activity achievement emotion [10]. Overall satisfaction with the outcome of the MSP can be called as performance achievement emotion [10].

From SDT perspectives MSP fulfilled students' autonomy, competency & relatedness needs and from Control-Value theory perspectives it gave

the students both activity achievement emotion and performance achievement emotions that's why it became the best learning opportunity. The researcher can catch students' achievement emotions and motivation from Texts in students' reflection thus able to interpret their experiences of MSP correctly. Therefore, this study supports the feasibility of reflective writing as a data collection tool and assessment of the student's educational attainment [15,16].

5. CONCLUSION

This study highlights the long-term impacts of MSP on students which matched with the expected learning outcomes set by Ministry of Education Malaysia. The analysis disclosed not only the outcome but also the process of MSP contribute for its success.

CONSENT

Informed consent was obtained from the medical graduates.

ETHICAL APPROVAL

Ethical approval was obtained from the Melaka-Manipal Medical College, Medical Ethics Committee.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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