

Learning Experience of Radiography/ Radiotherapy Graduates in MSc in Medical Physics Programme: Qualitative Study

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Abstract— Number of students who follow MSc in medical physics programme in postgraduate level has proliferated dramatically in recent years due to the entrance of Radiography/ Radiotherapy graduates in Sri Lanka. The purpose of this study was to describe the learning experience of Radiography/ Radiotherapy graduates' in MSc in medical physics programme. A qualitative study using in-depth interviews was conducted among eight Radiography/ Radiotherapy post graduates who follow MSc in Medical Physics programme in a selected university in Sri Lanka at their end of first year between March to April 2015. Data was analysed using thematic analysis. Finally, seven themes emerged from the interviews; availability of MSc programmes, relevancy of the course, course design, external issues, internal issues, career objectives and encouraging junior students. Participants had varied opinions on the one theme; career objectives. Factors which support their learning activities were relevancy of course and carrier objectives. Overall, results of the study suggest that the radiography/ radiotherapy graduates follow MSc in specific field due to unavailability of MSc programmes in their field.

Keywords—Radiography/ Radiotherapy graduates, perception, medical physics, thematic analysis.

I. INTRODUCTION

Postgraduate degrees are viewed by its stakeholders as having responsibility to provide graduates with advanced workplace skills, contribute to their achievement of short and long term career goals and also to provide a satisfying study experience for graduates.

Medical Physics is an ever-expanding field as a separate discipline. Applications of physics in medicine cover a wide range. There are four important sub-specialties in medical physics are related to: diagnostic radiology physics, nuclear medicine physics, radiation oncology physics and study of radiation hazards and radiation protection (health physics). MSc in Medical Physics programme began in Sri Lanka in the early 1990's. At the beginning, only physics graduates were able to follow this

degree. Later, number of students who follow MSc in medical physics programme in postgraduate level has proliferated dramatically due to the entrance of Radiography/ Radiotherapy graduates in Sri Lanka. However these graduates are with the biology background.

Evaluation is an important part of academic field. This type of studies will be helpful to Radiography/ Radiotherapy graduates to decide their career pathway and to policy makers from postgraduate institutes to compare and analyze their policies. There are no related studies found in this study in Sri Lanka and worldwide as well.

The purpose of this paper was to describe the learning experience of Radiography/ Radiotherapy graduates' in MSc programme.

II. METHODOLOGY AND EXPERIMENTAL DESIGN

Eight postgraduate students from a leading university in Sri Lanka offering MSc in Medical Physics programme were invited to participate in this study. Prior permission was obtained from this educational institution to conduct study at the end of the lectures between March to April 2015. Participants were informed about the purpose of study, its contribution to career, data collection method, their collaborative role, and commitment in this research project. In-depth face-to-face interviews were used to collect data. Semi structured questions asked by researcher using native language of participant. As audio recordings were to be used during face-to-face interviews, oral consent was obtained from the participants.

As suggested by Miles and Huberman (1994), a list of questions was used as reference to guide the interviews. The length of interviews ranged from 20 to 40 minutes, with an average of 30 minutes. Interviews were usually carried out in a quiet location on university class room or outside the university at the end of lectures. Data of age, gender, ethnicity, religion and type of undergraduate degree were collected as part of the interview process.

The median age of participants was 30 years and ranged from 28 to 33 years. Three students were radiographers and three were radiotherapists and two were application specialists. Six students were male while two were female. Five students were single. The most common nationality affiliation cited by participants was Sinhala (n=7), followed by Tamils(n=1).

A. *Thematic Analysis*

The method used here to analyse the data was Miles and Huberman's (1994) data analysis approach. This approach contains three basic principles: (a) early steps in analysis (b) use of displays to draw and verify descriptive conclusions about the phenomenon, and (c) verifying and validating conclusions.

The first basic principle involves reviewing, dissecting, and differentiating the interviewees' transcripts meaningfully and combining data retrieved from different interviewees, field notes, and observations made during the interviews, along with the investigator's reflective remarks that were made alongside the columns during coding. When creating codes, a governing structure was followed. Codes were defined to reflect how and why a data segment was categorized into that code.

Central to Miles and Huberman's (1994) framework is the use of "display" to draw conclusions, descriptions, and explanations. Therefore, "displays" were valid analyses as they provided a visual format to present information systematically all in one map so that valid conclusions could be elicited and for further revivification if needed. Once most data were analyzed and themes categorized, the final step of the Miles and Huberman (1994) framework was verifying and validating them. This was done during each stage of data analysis by techniques such as noting patterns and clustering. Another tactic as recommended by Miles and Huberman (1994) was counting the number of times a particular theme emerged. This helped to sharpen understanding of data by making comparisons/ contrasts and partitioning variables.

III. RESULTS AND DISCUSSION

Students had neutral perceptions of MSc in medical physics programme, but also clear expectations in mind of what institutions should provide to support and enable their learning and enhance their career prospects.

Students wanted to be challenged in their learning, but also partially supported by the institution. There were two types of issues; internal and external issues. External issues such as family issues, workload and lack of time were influenced. Internal issues such as no clear idea about the

course content at the early stage and lack of knowledge in mathematics and physics were influenced in the study.

Finally, seven themes emerged from the interviews; availability of MSc programmes, relevancy of the course, course design, external issues, internal issues, career objectives and encouraging junior students. These represent the areas of greatest concern to a majority of students interviewed. Participants had varied opinions on one theme; career objectives. Factors which support their learning activities were relevancy of course and carrier objectives. Overall, results of the study suggest that the radiography/ radiotherapy graduates follow MSc in specific field due to unavailability of MSc programmes in their field.

Graduates frequently reflected on the relative value of their educational experience in comparison to their financial input through tuition fees. The query 'is it worth it?' resonated with quite a few graduates and there was a pervasive tone of uncertainty about the value of MSc programme in light of the significant financial investment required.

Several inappropriate postgraduate courses are at debate level around the world³. There is no institution which provides postgraduate degrees in Radiography/ Radiotherapy in Sri Lanka. But, several postgraduate level programmes in Radiography/ Radiotherapy are available in other countries. Also, a few participants even they follow the MSc in medical physics they were unaware about being a medical physicist in Sri Lanka. Their aim was not to be a medical physicist in Sri Lanka. Most of them wanted to follow PhD in other countries and serve the motherland.

These are some selected quotes from the study.

"This university is much closed to my working place. Since I have no university preferences, I selected this university to follow my MSc".

"I don't think this MSc will improve my career. Because this curriculum resembles what I had in my undergraduate degree, but with a few changes."

"Too much of mathematical part. I don't know how to understand some parts since I am from biology stream"

Students almost exclusively spoke of their educational learning experience. This raises the need for strong postgraduate degree in Radiography/ Radiotherapy; include separate modules in mathematics and physics for these graduates and with a clear structure of academic management mirroring undergraduate student-facing aspects.

IV. CONCLUSION

Overall, results of the study suggest that the radiography/ radiotherapy graduates follow MSc in specific field in due to unavailability of MSc programmes in their field.

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