

# Perceptions of postgraduate alumni on knowledge and enhancing skills: experience of the Open University of Sri Lanka

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## Abstract

This paper reports on the perception of alumni on knowledge and skills development after completing a Masters Degree in Medical Entomology and Applied Parasitology (MEAP) offered to working adults using Open Distance Learning (ODL). The alumni perceptions obtained at the end of the programme and after four years of graduation, verified the effectiveness of teaching – learning methods of the programme, its influence on career mobility and contribution to their current job performance. Overall, the alumni were satisfied with contents of the MEAP and views expressed revealed the programme positively contributed to their professional development. Alumni used the subject specific knowledge, subject specific skills and generic skills gained in their professions and a few suggested improvements to hands on experience on subject specific practical skills.

## Introduction

Sri Lanka, like many other countries in South Asian, South East Asian and African regions, has had to confront devastating outbreaks of vector borne diseases. Although WHO officially certified Sri Lanka to be malaria-free in 2016, country must remain vigilant to ensure that the disease is not reintroduced (Simac, et al., 2017) This together with the consistent outbreaks of Dengue fever (Ali et al., 2018), the Government of Sri Lanka has continuously considered control and prevention of vector borne diseases as a national priority. In this scenario, training of vector control personnel, particularly for enhancement of knowledge and skills in medical entomology and parasitology, is vital and indispensable for the efficient planning and execution of vector control programmes.

The postgraduate degree programme of study leading to a MSc in Medical Entomology and Applied Parasitology (MEAP) introduced by the Open University of Sri Lanka (OUSL) in 2013 provided opportunities for such training and its objective was to increase the human capital trained in theoretical and practical aspects of vector borne disease control, emphasizing on the current knowledge and skills of pathogen and arthropod vector control. The MEAP is the first such programme in Sri Lanka, and unique because it was offered through the Open and Distance Learning (ODL) mode to provide a further learning pathway to working adults to study while they work. The existing Masters degrees in the fields of Medical Entomology and Parasitology are offered as full-time courses of study through conventional face-to-face teaching and learning practices ([www.lshtm.ac.uk](http://www.lshtm.ac.uk)).

The MEAP was offered to any graduate in the fields of Biological Sciences, Veterinary Sciences or Medical Sciences, involved or interested in vector borne disease control. The programme was two years in duration, with an option to exit with a Postgraduate Diploma after one year. The first-year courses were compulsory and provided a theoretical foundation via the courses: parasitology, medical entomology, host parasite interaction, epidemiology and control of vector borne diseases, and contained cross cutting areas like immunology, molecular biology and public health issues and polices related to vector borne diseases. In addition, 20% of the learning hours in the first year were devoted to the enhancement of practical skills relating to parasitology and entomological techniques.

The second-year courses included optional and compulsory courses and focused on advanced specialized areas building on the first-year theoretical background. The research project and the course on research methodology and communication skills were compulsory to graduate. The research project carried out independently by learners contributed to 50% of the total learning hours in the second year and facilitated the development of analytical skills and creativity through problem-based learning along with development of an inquiring mind, attitudes, values and professionalism.

This programme was enriched through collaborative involvement of OUSL academics and subject specialists from other universities and research institutions, which facilitated the development of a career oriented professional programme suited for the specific work force of the country. Course design emphasized on independent study of course material and references. To motivate the learners, a variety of options were provided for learning such as continuous discussion at contact sessions (day schools) and feedback through LMS, flexibility to sit for

examinations in OUSL regional centres and provisions to have practical sessions and research project placement in other universities.

During practical sessions, learners were provided hands on experience in diagnostic parasitology using classical and modern techniques and on entomological techniques relevant to arthropod vector bionomics and insecticide resistance monitoring. A significant feature of the two practical courses was the group projects that enabled learners to acquire both subject specific practical skills and generic skills such as presentation, team work, time management, peer learning, group work and leadership skills.

According to Aslam et al, (2017) it is essential to assess the impact of a study programme on alumni in order to re-evaluate the programme aims and to rationalize with the professional needs. Kirkpatrick & Craig (1967) state that perception of alumni of skills or competencies gained after completion of the programme and the extent to which those skills have contributed to career improvement are important indicators of the effectiveness of any study programme. It has been found important to assess the impact of a career oriented programme particularly when offered in distance mode. Jeannot & Chastonay (2013) also highlighted that surveys conducted among alumni permitted to evaluate the effectiveness of a community-oriented Master's degree in Public Health.

Since the MEAP programme was on its first cycle of delivery, it was thought appropriate to ascertain the impact it has had on knowledge and skills enhancement of alumni, using a tracer study. The specific objectives were to obtain views of the alumni about the perceived knowledge (subject specific) and skills (intellectual, practical and generic skills) gained from the postgraduate training offered using ODL and its implications for employment.

The specific research questions of the tracer study were:

- What were the perceptions on the teaching- learning components of the MEAP programme?
- How has the MEAP programme facilitated career progression of alumni *after 4 years*?
- How has the subject and generic skills acquired contributed to career progression?

## **Methodology**

This research was a tracer study of nine alumni (out of 12 enrolled) who successfully completed the programme using a mixed approach of qualitative and quantitative methods. To obtain the viewpoints of alumni, two questionnaires were administered: first questionnaire at graduation and the second one, four years after graduation.

The first questionnaire consisted of closed questions to obtain views on a five-point scale for 24 questions with respect to the study programme (Content and quality, Teaching and learning, Assessment, Learner support, Overall outcome) and three open ended questions probing on the best features, shortcomings and improvements required. The questionnaires were posted to alumni and collected when they came for the Convocation.

The second questionnaire had nine questions, some to be rated on a five-point scale and others open ended questions, which focused specifically on the career mobility and job performance and was administered through email.

The responses for some open-ended questions in the second questionnaire required further probing to encourage the alumni to elaborate on their views. Hence, follow-up interviews were conducted via telephone with five of the alumni actively engaged in using the knowledge and skills acquired from the MEAP in their current employment.

Quantitative data was analysed using frequencies and percentages. The Open-ended questions were analysed using content analysis identifying the major themes.

## **Findings**

### **Learner Profile**

The profile of the enrolled learners of the MEAP programme is given in Table 1. Of these, nine had completed the two-year MSc degree. One of the three learners who did not graduate with the master's degree, completed the first year and obtained a Postgraduate Diploma. The remaining two who could not complete were Assistant Medical Practitioners (AMPs) currently working in the Health Sector.

Of the 9 alumni who completed, 7 and 8 responded to the 1<sup>st</sup> and 2<sup>nd</sup> questionnaires, respectively, indicating an average 83% response rate in the study.

**Table 1: Profile of learners of the MEAP programme**

Characteristic	Categories	No	
Age	20 - 30	1	
	30 - 40	4	
	40 - 50	4	
	> 50	3	
Entry Qualification	Bachelor of Science (BSc)	6	
	Bachelor of Medicine and Surgery (MBBS)	4	
	Assistant Medical Practitioner (AMP)	2	
Occupation		Male	Female
	Research assistant (Zoological gardens)		1
	Teaching assistant (undergraduate level)		1
	Technical officers	1	2
	Entomologists Health sector		2
	Medical doctors	3	
	Assistant Medical Practitioner (AMP)	2	
	Total	6	6

### Perceptions on the teaching-learning of the MEAP programme

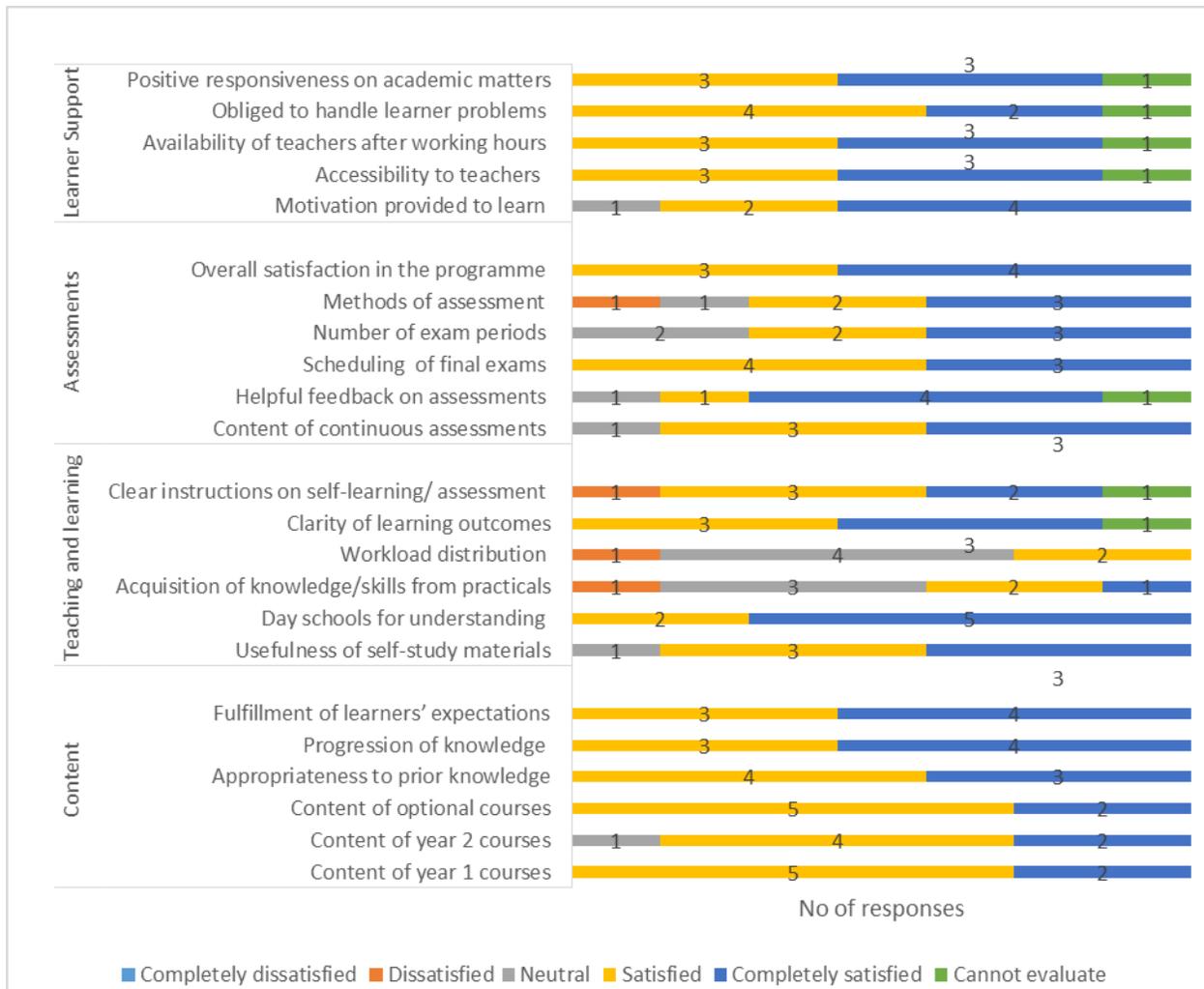
Seven out of the nine alumni responded to the first questionnaire administered just after graduation. For majority of the components with respect to the Content, Teaching-learning, Assessment and Learner support, alumni expressed their satisfactions or complete satisfaction (Figure 1). Dissatisfaction was observed in acquisition of skills from practical sessions, workload distribution, instructions, and methods of assessments only by a learner and was supported by the following comments in the open-ended questions: “*hands on experience on practical skills was not sufficient (Entomologist 1)*”, and to “*allocate more time for practical sessions*” (Teaching assistant).

On the overall outcome of the MEAP, alumni indicated that the study programme fulfilled their initial expectations, prepared them for work, and to continue in a similar field (Figure 2). All indicated that the prior knowledge they had on the programme was useful and would recommend the programme to others. However, two out of six indicated that the programme was difficult and demanding, needing much effort in some courses, and three out of seven mentioned that the allocated time per course was not manageable as a working adult.

However, the two Entomologists who were using the knowledge and skills learned in the MEAP directly in their current profession mentioned that they need more practical exposure. They elaborated their suggestions at the interviews even after four years for further enhancement of the MEAP programme.

*“hands on experience individually will be more useful and to provide flexible opportunities in the practical courses where for people like me can involve in the entire process of a technique to completion? eg. extraction of DNA and a related PCR, on an individual basis, and gain a contribution of marks to the final grade (Entomologist 1).*

*“Most entomologists employed in Health sector in different regions in Sri Lanka are faced with variety of vector borne diseases namely, dengue, filariasis, JE. Hence hands on experience on a wide range of field and laboratory skills, some common to all vectors and parasites, and others which are specific to a type of vectors and parasites should be introduced in practical courses” (Entomologist 2).*



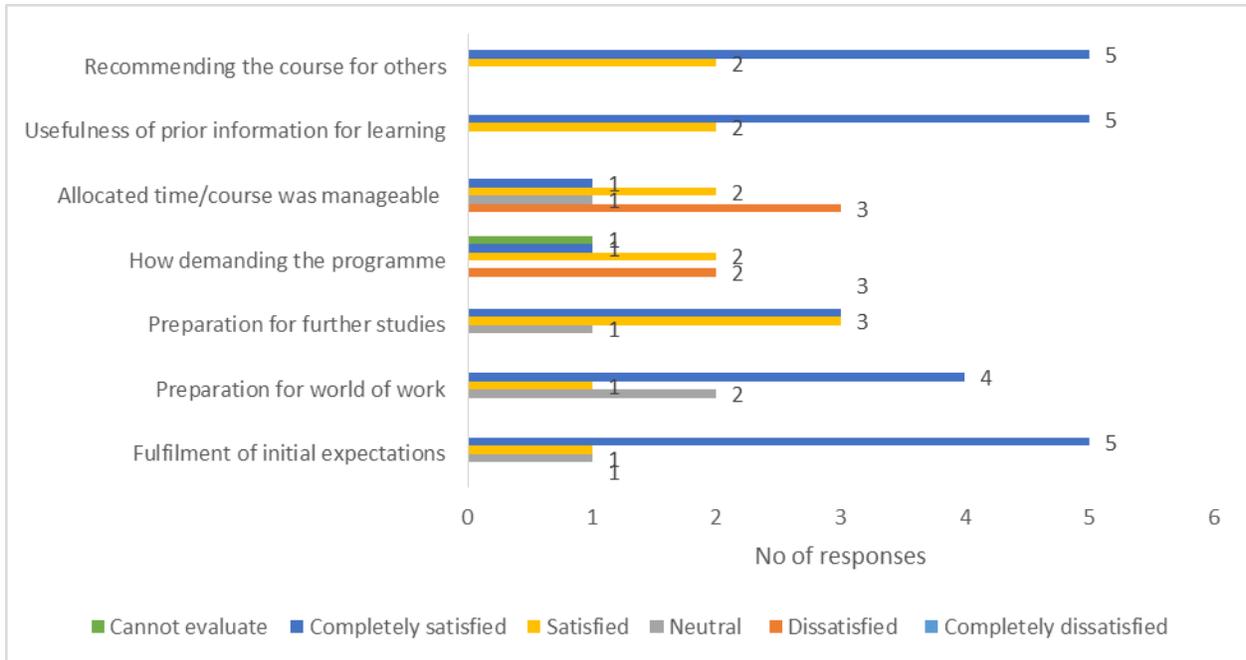
**Figure 1: Alumni perception on content, teaching and learning, assessments and learner support at graduation**

On further discussion at an interview with a technical officer in a medical faculty, indicated: *“Looking back, it appeared then that the course contents were too much to study within the given time frame, since I studied while working ... But now the contents that were hard to understand is relevant and useful in my current profession”* implying the comprehensiveness of the MEAP programme.

Commenting on the open-ended questions on best practices of this programme, many were satisfied with the course content, online guidance and feedback, learner support received during the programme and the transferable skills that they have practiced while learning and on the shorter duration of the programme delivered using ODL.

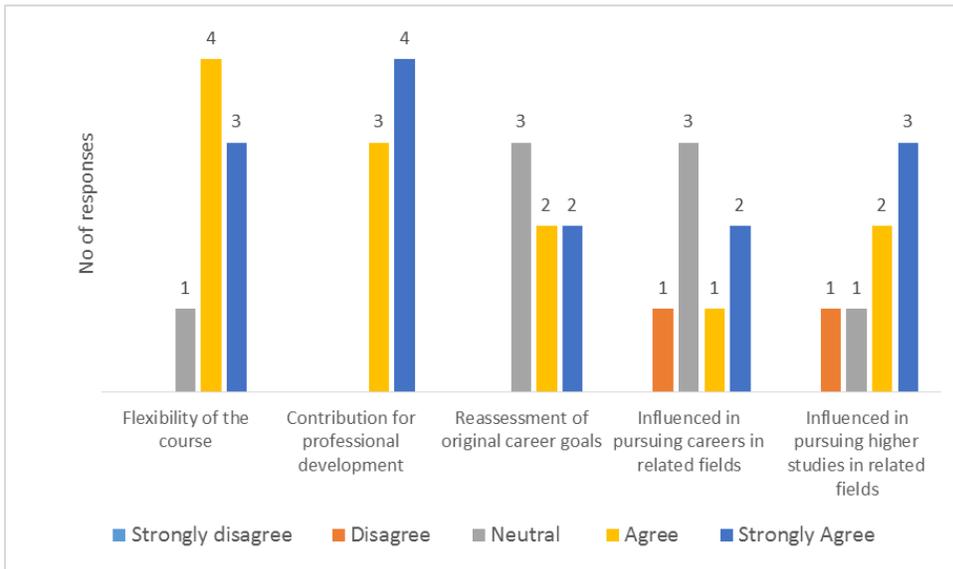
**Perceptions on career progression**

One of the objectives in the second questionnaire was to determine how the MEAP had facilitated career progression of alumni. Six out of the nine alumni had received promotions in their respective work places and some had completed the efficiency bar requirements and were awaiting promotions. Of the remaining three, one had left her job after marriage. The other two alumni had left their professions in the health sector, one technical officer had joined as an administrator in the university system and one research assistant had joined as a school teacher for better prospects and convenience.



**Figure 2: Overall evaluation of outcomes at graduation**

Overall, alumni agreed that MEAP contributed to their professional development, to study while working, to reassess their career goals and influenced to pursue further studies in Medical Entomology and Parasitology (Figure 3). However, there was a disagree/neutral response on the influence of the MEAP on pursuing careers in related fields by four out of the seven alumni. Among these disagreeing/neutral responders were one medical doctor who had received a promotion as a Director of a hospital, one entomologist awaiting promotion in the same field and two who had moved onto unrelated fields: technical officer to a university administrator and a research assistant to a school teacher.



**Figure 3 :Feedback on careers and career mobility four years after graduation.**

The medical doctor (1) and the school teacher (former research assistant) said the following at interviews. *“I gained an in-depth knowledge from courses such as in Entomology, Parasitology and clinical aspects of vector borne diseases for the first time which were essential in the treatment and management of vector borne diseases” (Medical Doctor 1).*

*“Although I did not use the MSc for my career change, the knowledge on mosquito identification, parasite identification and the awareness on vector borne diseases gave me a holistic picture that was very useful in addressing health issues among children and the community” (School Teacher).*

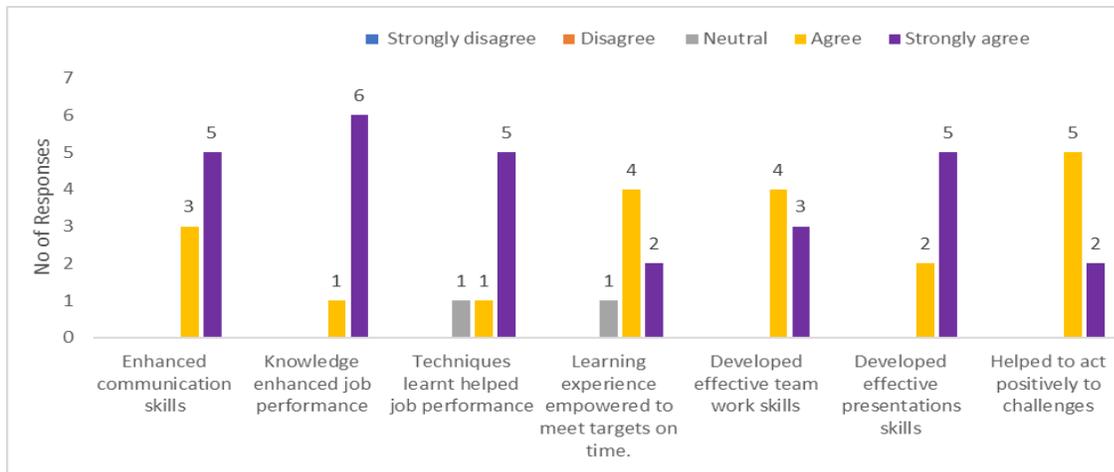
**Contribution of acquired knowledge and skills on performance in current professions**

In response to the views sought on how the knowledge and skills learnt contributed to their current job performance, all, except one alumnus who was not employed, responded to the statements. They agreed that knowledge and techniques gained from MEAP enhanced their job performance (Figure 4). It was also found that they had gained generic skills, particularly improved in communication skills, effective presentation skills, teamwork skills and that these knowledge and skills empowered them to meet targets on time and to act positively to challenges.

Significantly, seven out of the eight alumni indicated that 70 – 90% of their achievements in their current profession were due to knowledge and skills gained from this programme. The technical officer in the medical faculty indicated that 90% of her achievements in her current profession were due to knowledge and skills acquired from the MEAP programme.

On further analysis of feedback, it was clear that those who gained promotions in their jobs in the health sector were using both the subject oriented knowledge and skills as well as generic skills learnt during the MSc programme, while the alumni who had moved into other job sectors were using the generic skills to enhance their current job performance.

**a. Contribution of knowledge and subject specific skills on career performance**



**Figure 4: Alumni feedback on contribution of knowledge and skills developed from MSc programme on job performance**

Overall, all the alumni commented on the usefulness of the knowledge and the subject specific skills gained through the MEAP programme. According to the comments for the open-ended questions the following areas emerged as the useful aspects supported with individual quotations (Table 2).

**Table 2: Perceived usefulness of the MEAP programme**

	Aspect	Quotation
1	Organised Programme	<i>“A very well organized program given lectures and practicals, very valuable for over master’s degree. It is highly appreciated if you start a PhD programme” (Medical doctor 2)</i>
2	Practical sessions were informative and useful in the job	<i>“Demonstration practical sessions organized in the practical courses were very informative and are useful for current activities in my profession” (Entomologist 1)</i>
3	Using learnt knowledge in the practice	<i>“I use learnt knowledge in MSc when I’m preparing technical fact sheets, instructions regarding vector surveillance and vector control in relation to dengue vectors. Furthermore, I’m one of the editorial team members of the National Dengue Control Unit published “Guidelines for Aedes vector surveillance and Control” book” (Entomologist 1)</i>
4	Using learnt knowledge in review/monitoring meetings	<i>“Overall knowledge obtained from MSc help me to explain or to suggest technical background of entomological issues in the field and / or evaluate this field at technical meetings, progress monitoring meetings etc.” (Entomologist 2)</i>
5	Using learnt knowledge and skills in prevention and treatment	<i>“Knowledge and skills acquired is used in preventive aspects of vector borne diseases and treatment of parasitic infections”(Medical doctor 1)</i>
6	Using to educate Advanced level students	<i>“Students were given a better, updated knowledge and explanations related to vector borne and parasite diseases, Recombinant DNA technology and the practical exposure including PCR methods etc.”(School Teacher )</i>
7	Developed the ability in analytical thinking	<i>“Though this MSc was not directly relevant, it has developed my ability of analytical thinking which has been quite useful in decision making for my present post.” (University Administrator)</i>
8	Introduced new techniques as a result of the research project	<i>“I have researched and introduced several new staining techniques to the laboratory. After the research project, done as the partial fulfilment for the MSc, several techniques that were not previously done in our department (ELISA, RDT.. etc.) are currently carried in the department” (Technical Officer, Medical Faculty)</i>

**b. Contribution of generic skills on career performance**

The open-ended questions revealed that generic skills developed during the course were being practiced by most of the alumni in their respective professions.

One of the medical doctors had stated he used the skills gained during the course when teaching medical students. *“I gained the ability to teach medical students using effective power point presentation” (Medical Doctor 2).*

The university administrator who gave a neutral response to the last two statements in Figure 3 had gained generic skills that she practices in her current profession. *“I have also been able to develop my presentation skills which are today, a great advantage to me in delivering speeches” (University Administrator).*

She further elaborated her job experience in the following quotation indicating how she had used the transferable skills she had developed in the course when negotiating and communicating with diverse people. *“As it was not directly relevant to the work I am doing now, I have not faced any specific challenges. However, the skills I have gained from the MSc have been very valuable when facing certain challenges such as handling human resources, working collaboratively with people from different disciplines and cultures, dealing with complex and unpredictable issues. Overall, these challenges have helped me to effectively communicate my ideas in different ways to different people with different levels of knowledge” (University Administrator).*

Analysed interview data showed that some had undergone transformation of learning and changed their attitudes, values and mindset as a result of learning in this MEAP.

*“The learning experience paved the way for me to change my mind from arranging practical for medical students to getting involved in investigations along with academics in my department and I contribute greatly to research projects of academics (Technical Officer, Medical Faculty).”*

## **Discussion**

Alumni of MEAP consider the programme offered using ODL mode to working adults was relevant and important since alumni were able to obtain postgraduate training relevant for their promotions without availing 2 years of study leave which would have been the case if they followed a programme of study using conventional face to face teaching learning methods. The continued interest shown even after four years, with 8 out of 9 alumni responding to the 2<sup>nd</sup> questionnaire, revealed that they valued the knowledge gained and subject specific skills that were enhanced from the programme and were currently using them either for disease control and prevention or awareness raising and community education in their current professions. This implies that the training related to health workforce had been successfully transferred through distance education. This finding supported the earlier research conducted with alumni of the master’s degree in Public Health of University of North Carolina where the necessary training for public health workforce was successfully provided through distance education (Davis et al., 2004).

Although the small sample size is a limitation of this study, the high response rate showed that the findings in this tracer study was worth considering in the future. Overall, alumni were satisfied with teaching-learning, assessment, learner support and the outcomes of MEAP programme. Some found the programme to be difficult and demanding, needing much effort to study some courses as these learners were adults in different professions, studying while working and managing families. Even though they had the difficulty in coping, most of them had later realised the value of this programme when applying the techniques and skills in the world of work. However, issues raised regarding workload need to be addressed when the MEAP programme is offered in the future.

All the alumni except for alumna who left her job after marriage, attributed career promotions and / or professional development they achieved to completion of the MEAP degree. Career mobility to other professions was also observed in two alumni; one moved as a university administrator and the other as a school teacher. It was obvious from the wide range of positive comments received to the open-ended questions and from interviews, that alumni were using the knowledge, subject specific skills and the generic skills they enhanced during the programme of study and agreed that they benefitted their professional development due to the completion of the MEAP degree.

Further it was obvious that the generic skills transferred were being highly used by the university administrator, while those in health sector professions and in teaching were mostly using subjective specific skills along with generic skills. Alumni acquired generic skills, leadership and collaborative skills in their group work projects in the first year and more advanced analytical skills, problem solving skills, reporting orally and in writing skills in their individual research projects in the second year of study while collaborating with tutors and peers.

The two Entomologists had requested for further hands on training on a range of vector insects and parasites, and in-depth hands on training on specific diagnostic tools; this would be a challenging task for both the teachers and the learners who work while studying. However, when working together as teams in integrated vector management practices in control campaigns, instances may arise when in-depth skill development is required for some members, on novel diagnostic techniques and on disease and vector management methods.

A programme structure designed to cater to specific hands on practical exposure for individual learners on a need basis would benefit future career oriented programmes offered using ODL to working adults at the Postgraduate level in the fields of sciences. Providing flexibility to individual learners interested in attending additional practical sessions where they could get exposure to in-depth hands on training could be explored in this regard. This will be helpful but involve an additional workload and may not be cost effective on the part of the learner and the programme. Thus, whether the programme structure change to include more in-depth practical sessions and how such sessions could be implemented in an ODL setting needs to be further investigated.

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