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# THE EFFECTIVENESS OF L4, L5 BOTANY COURSES FOR EMPLOYABILITY: RESPONSES OF OUSL GRADUATES

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## Abstract

The Department of Botany at the Open University of Sri Lanka (OUSL) offers many Botany related courses to OUSL undergraduates. However, there were no prior studies conducted on the effectiveness of these courses for employment. Findings of such studies will contribute to the improvement of the curriculum of Botany in the B. Sc. Degree Programme. The primary objective of the present study was to assess the appropriateness of Botany courses offered in the B.Sc. Degree Programme to meet the demands of the job market in the country. A survey was carried out with 160 OUSL B. Sc. graduates using a piloted questionnaire (Cronbach's  $\alpha = 0.75$ ). According to the results obtained in the survey, a comparatively high percentage of graduates are employed as teachers (44%) followed by technical staff (25%), executives (13%) and 6% in administrative, research based and self-employed categories. Most of the graduates are employed in private and semi-government sectors (75%) and 25% are in the government sector. The survey further revealed that 81% of B.Sc. graduates are assisted by theoretical and practical skills gained from Botany related courses in finding employment. Microbiology and Genetics related courses have considerably supported the OUSL graduates to obtain employment. Practical skills gained by the offering of Microbiology related courses helped 50% of the graduates to find their profession followed by 13% by achieving practical skills in Genetics and Plant Breeding. The analysis indicated that there is a significant association ( $\chi^2 = 130.00$ ,  $df = 7$ ,  $p \leq 0.05$ ) between the employer's optimistic attitude towards the knowledge of OUSL graduates in different areas of Botany whereas, there is no significant association ( $\chi^2 = 12.64$ ,  $df = 7$ ,  $p = 0.081$ ) between the practical skills of the OUSL graduates and their employer's attitude. However, there is a significant association ( $\chi^2 = 130.00$ ,  $df = 8$ ,  $p \leq 0.05$ ) between the employer's readiness to absorb more OUSL graduates who offered Botany related courses for their B. Sc. Degree. Based on the survey, the present study indicated that courses offered by the Department of Botany have demonstrated the theoretical knowledge of courses is satisfactory whereas the practical components of the courses need to be improved to accommodate requirements of the employer. Microbiology and Genetics related subjects (BTU 2102, BTU 2104, BTU 3101, BTU 3111) and the research projects (BTU 3209) have contributed to employment. However, the survey indicated that the rest of the courses require revision, paying special attention to the practical components. The findings of this preliminary study could be used as a guideline for in-depth studies in order to improve the curriculum of Botany in the B. Sc. Degree Programme to meet the demands of the job market in Sri Lanka.

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## Introduction

The effectiveness of programmes offered through higher education is to produce a high quality graduate with higher employability. The term “employability” is a difficult concept to define concisely and comprehensively. Hillage and Pollard (1998) have stated that it is a term used in a variety of contexts with a range of meanings, and can lack clarity and precision as an operational concept. The notion of employability challenges traditional concepts of higher education and raises the question of what the point of higher education is; subject knowledge and understanding, or learning how to learn. According to a certain school of thought, employability is also determined by government policy and employers, rather than the academy, and this has been lead to conflict amongst academics who are expected to teach employability skills and attributes in the classroom. De la Harpe *et al.* (2000) has suggested that there is global concern that existing undergraduate programmes are not producing graduates with the kind of life long learning skills and professional skills which they need in order to be successful in their careers.

Employability is directly related to employability skills. Coopers and Lybrand (1998) define ‘employability skills’ in terms of main areas:

1. traditional intellectual skills e.g. critical evaluation, logical argument
2. key skills, e.g., communication, IT, etc.
3. personal back ground characteristics, motivation, independence
4. students’ awareness of the organizations and how they can carry out their functions where they will be employed

Though there were no universally acceptable norms for the threshold standards and ‘graduateness’, employers remain confused by the diversity of higher education courses. There is clear evidence that a significant proportion of graduates experience difficulty in accessing employment which makes full use of their potential, while some employers complain that they are unable to fill their target graduate vacancies with candidates of the appropriate quality. The Faculty of Natural Sciences offers a number of courses under the B. Sc. Degree Programme and produces a considerable number of graduates each year. However, there is a lack of follow up studies to investigate the position in the job market in the country. Thus, there is need in such studies to improve the effectiveness of courses offered under the B. Sc. Degree programme to increase the student enrolment and to produce the graduates with the qualities preferred by the employers.

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## **Objectives**

The two-fold objectives of the study are:

1. collect detailed information about the OUSL graduates recruited into different organizations
2. identify courses that contribute much to the success of OUSL graduates in the competitive job market

## **Methodology**

The target population of the study includes the graduates who have successfully completed the B. Sc. Degree Programme in the Faculty of Natural Sciences of the Open University of Sri Lanka and are employed in different sectors. This target population consisted of graduates passed out during the period of 2000- 2006. The Level 4 and 5 courses offered by the Department of Botany were chosen. The sample consists of 160 (male 90, female 70) employed graduates. The piloted and validated questionnaire was used to gather information by mailing questionnaires. The data collected were subjected to frequency and cross tabulation analysis using SPSS (2008)

## **Findings**

### **DEMOGRAPHIC CHARACTERISTICS OF THE EMPLOYED GRADUATES**

The sample population included a total of 160 graduates (female/ male ratio of 70/90) and a majority of them were married (62.5%). The majority of the students have entered into the B. Sc. Degree programme with three passes (GCE (A/L), New Structure (50%), and four pass (GCE (A/L) Old Structure). Most of the graduates included in the sample population were employed in the teaching (70%) and in technical professions (40%). The rest of the graduates in the sample include administrative and executive jobs which represented 10% and 20% respectively.

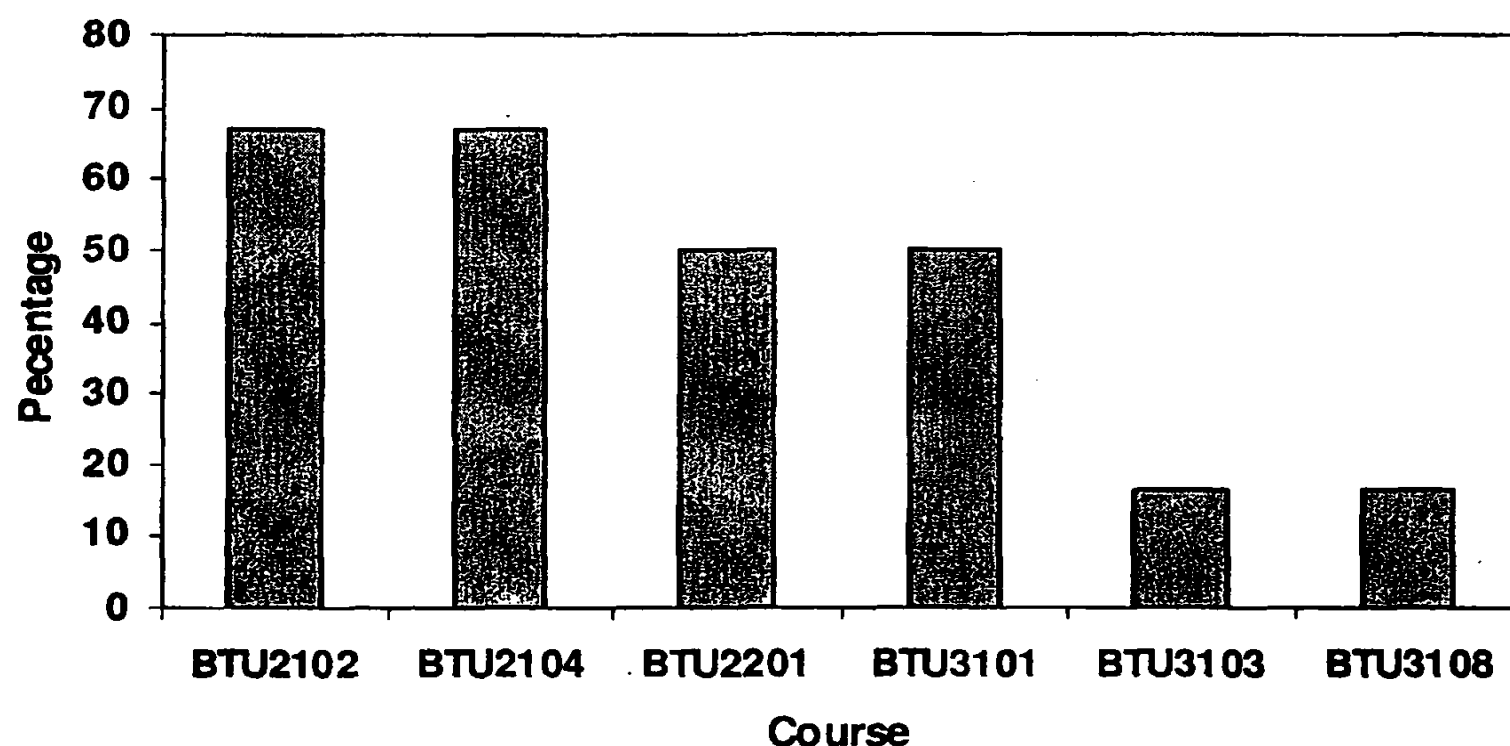
The nature of the current employment of the graduates included in the sample population shows a variation. A majority of Open University B. Sc. graduates has been employed in the private (37.5%) and semi-governmental (37.5%) organizations/institutions and the rest of graduates were employed in governmental organizations (40%). The graduates in the sample were diverse according to the work experience and a majority of them was recently employed (87.5). However, there were graduate employees with work experience ranging from 5-10 years and 11- 20 years.

### **EFFECTIVENESS OF THE COURSES AND PRACTICAL SKILLS FOR EMPLOYABILITY**

It was revealed that the courses offered by the department considerably helped the graduates to find the employment (81.2%) and in contrast 18.8% were in the

opinion that the Botany related courses were not helpful. The theoretical knowledge gained from Botany related courses and their importance in employability of Open University graduates is given in Fig. 01.

*Fig. 01. Helpfulness of the theoretical knowledge of Botany related courses in obtaining the employment.*



The practical skills gained from participation in the practical sessions of the Botany related courses have also assisted the Open University graduates in obtaining employment. The majority of graduates were in the opinion that they have gained considerable practical skills during participation in the practical session conducted by the department and it was helpful at the time of obtaining the employment (81.2%). Meanwhile, 18.8% of the graduates have stated that there was no support from the skills developed from the practical sessions conducted by the courses offered by the department. The practical skills developed during practical sessions arranged for the Botany related courses are shown in Fig. 02. Among the Botany related courses, courses such as Principles of Microbiology (BTU 2104), Environmental and Applied Microbiology (BTU 3101) and Genetics (BTU 2102) have contributed considerably to skills which have helped Open University graduates in obtaining employment (Fig. 2). Comparatively, the rest of the courses (Plant Physiology - BTU 2201, Plant and Man - BTU 3104, Plant Breeding - BTU 3111 and Research Project in Botany - BTU 3209) more or less contributed to the skill development which is required by the employers. The practical skills gained in these areas of disciplines have played an important role in successful competition in the job market.

Fig. 02. Helpfulness of the practical skills gained from the Botany related courses in obtaining the employment.

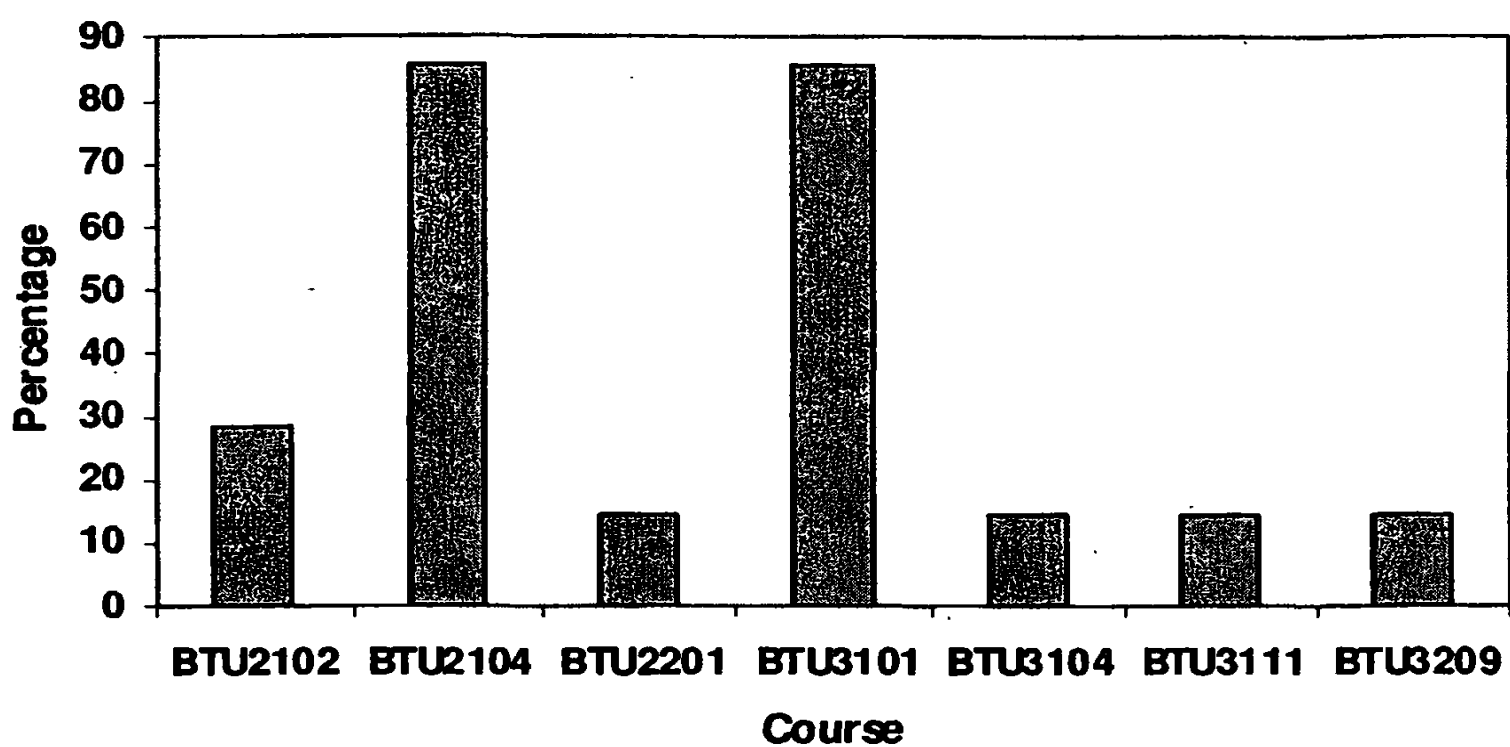


Table 01. Relationship between the helpfulness of the theoretical knowledge gained from Botany related courses in obtaining different types of employments.

Employment Category	Help from Botany		Total
	Yes	No	
Administrative	10 (6.2%)	0 (0.0%)	10 (6.2%)
Executive	20 (12.5%)	0 (0.0%)	20 (12.5%)
Technical	20 (12.5%)	20 (12.5%)	40 (25.0%)
Teaching	60 (37.5%)	10 (6.2%)	70 (43.8%)
Research base	10 (6.2%)	0 (0.0%)	10 (6.2%)
Self employed	10 (6.2%)	0 (0.0%)	10 (6.2%)
<b>Total</b>	<b>130 (81.2%)</b>	<b>30 (18.8%)</b>	<b>160 (100.0%)</b>

$$\chi^2 = 38.095, df = 5, p \leq 0.05.$$

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There was a variation in the effectiveness of the theoretical knowledge gained from the Botany related courses with respect to the success in obtaining employment (Table 01.). According to the responses obtained from the employed Open University graduates, the theoretical knowledge gained from Botany related courses was satisfactorily fulfilled for most of the employment categories except for the technical and teaching sector. There were only two employment categories such as technical (12.5%) and teaching (10.0%) for which knowledge acquired from Botany related courses was not helpful in obtaining the position. Similar relationships were found with the helpfulness of the practical skills acquired from the Botany related courses and the employment categories.

The responses received from Open University graduates employed in different institutes indicate that their employer's attitude was positive towards the Open University graduates (92%). Meanwhile, the practical skills of the graduates are also appreciated by the employers (78.6%) and they are willing to absorb more Open University graduates (92.3%). The analysis of responses of the survey indicated that there was a significant association ( $\chi^2 = 130.00$ ,  $df = 7$ ,  $p \leq 0.05$ ) between the employer's optimistic attitude towards the theoretical knowledge of Open University graduates in different areas of Botany whereas, there was no significant association ( $\chi^2 = 12.64$ ,  $df = 7$ ,  $p = 0.081$ ) between the practical skills of the Open University graduates and their employer's attitude. However, there is a significant association ( $\chi^2 = 130.00$ ,  $df = 8$ ,  $p \leq 0.05$ ) between the employer's readiness to absorb more Open University graduates who offered Botany related courses for their B. Sc. Degree.

## **Discussion**

The results indicated a higher percentage of graduates employed as Teachers (44%) followed by Technical staff (25%), Executives (13%), and 6% in Administrative, research based and self-employed categories. The higher percentage of teachers in the sample population reflects the fact that most of the students enrolled in the B. Sc. Degree Programme are teachers. Meanwhile, most of the Open University graduates (75%) are employed in private and semi-government sectors and the rest are in the government sector (25%). This could have resulted from the recent changes in the government policy which encouraged foreign investment in industry in the country. In addition, the rapid increase in private schools (International Schools) in the country also diverted the employment market toward the private sector. Compared to the private sector, chances in obtaining government employments are less, which is beyond the scope of the present study. A proportion of 81% of B.Sc. graduates has stated that the theoretical and practical skills gained from Level 4 and Level 5 Botany courses assisted them in finding employment. The survey revealed that Microbiology and Genetics related courses have supported the Open University graduates in obtaining employment. Practical skills gained from Microbiology and Genetics related

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courses have helped 50% and 13% of the graduates respectively, to find their employment. In general, these trends indicate that there is an increased demand in skill development for industries where high technological applications are involved.

There was a significant association ( $\chi^2 = 130.00$ ,  $df = 7$ ,  $p \leq 0.05$ ) between the employer's optimistic attitude towards the knowledge of Open University graduates in different areas of Botany whereas, there is no significant association ( $\chi^2 = 12.64$ ,  $df = 7$ ,  $p = 0.081$ ) between the practical skills of the Open University graduates and their employer's attitude. This indicated that there is an inadequacy in exposure to fast developing techniques and instruments in Botany related areas. However, there is a significant association ( $\chi^2 = 130.00$ ,  $df = 8$ ,  $p \leq 0.05$ ) between the employer's readiness to absorb more Open University graduates who offered Botany related courses for their B. Sc. Degree. It is not surprising that the employer's would favor Open University graduates as they are better able to self learn and engage in independent work. employment. Practical skills gained from Microbiology and Genetics.

## Conclusions

In conclusion, the Department of Botany has been providing theoretical knowledge of courses to the graduate at a satisfactory level. However, the practical components of the courses need to be improved and expanded to accommodate employer's requirement. Microbiology (BTU 2104 and BTU 3101), Genetics (BTU 2102 and BTU 3111) related subjects, and the Research Projects in Botany (BTU 3209) have contributed a great deal to employment. In this preliminary study, an attempt was made to focus on the opinion of the Open University graduates who followed Botany courses and who were employed in diverse sector. However, it is worth investigating the independent attitudes of the university academics and employers on the employability of the Open University graduates.

## Reference

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