EMPLOYABILITY SKILLS OF INFORMATION TECHNOLOGY GRADUATES – A COMPARISON OF EXPECTATIONS, PRIORITIES AND STRATEGIES

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Evidence suggests that undergraduates often fail to secure employment due to the lack of the possession of employability skills. Since employability of entry-level graduates is a challenge, higher education institutes must produce graduates equipped with employability skills and reasonable expectations.

The objectives of this study are (1) to investigate employability skills required by employers, value addition imparted by the university lecturers and value brought by entry-level graduates in information technology (IT) sector in Sri Lanka, (2) to compare differences of expectations of employability skills among employers, university lecturers and final-year undergraduates, and (3) to identify strategies deployed by employers, university lecturers and final-year undergraduates to minimize the differences. The literature identifies mainly three types of employability skills, i.e., cognitive, intrapersonal, and relational, on which this study is built on.

Three representative samples were taken from employer, university lecturer and final-year undergraduate populations, and data were collected using three self-administered survey questionnaires. The findings show significant differences in the priorities given for each skill category by the three groups. The university lecturers have given a high emphasis to cognitive skills which significantly exceeds employer expectation. Undergraduates' intra- and interpersonal skills are below employer expected levels. There are some key strategies used by each party to enhance employability skills during the university tenure and after graduation. The findings led to highlight the importance of graduates marketing themselves effectively to meet employment requirements. Overall, undergraduates must have a clear view of how to secure an employment, maintain the employment and survive on the job.

Keywords: Employability Skills, IT Industry, Entry-level Graduates

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INTRODUCTION

It is essential to understand the employability of potential job seekers of any relevant study field. Employment and employability should not be misunderstood (Lees, 2002). Being employed means having a job while being employable means having the qualities needed to maintain employment and progress in the workplace. Knight and Yorke (2003) defined employability as a set of achievements- skills, understandings, and personal attributes- that make graduates more likely to gain employment and be successful in their chosen occupations, which will benefit themselves, the workforce, the community, and the economy. The common definitions of employability build on the economy and higher education. So that, the function of the latter is the production of entrepreneurial, knowledgeable, and skilled graduates (Tomlinson, 2012). Employability from the perspective of higher education institutes is, therefore, about producing graduates who are capable and able. Employability of undergraduates impacts upon all areas of university life, including the delivery of academic programs and extra curricula activities. Still, enhancing employability of entry-level graduates is a challenge; higher education institutes must produce graduates equipped with employability skills and reasonable expectations.

Traditional jobs have disappeared and people entering the job market need to have different attributes. The growing emphasis on generic skills in higher education has several causes. One is the increasing evidence of demand from employers for graduates to possess generic skills. There are also various economic, technological, and educational arguments that have brought generic skills to wider attention. The contemporary focus on generic skills is really a part of a bigger, yet unresolved, debate about the purpose of the university education and how to develop well educated persons who are both employable and capable of contributing to the civil society. Higher education institutes that cater for technology-driven business sectors play an important role of a country in the transition to knowledge-based economy through the supply of technologically capable human capital (Collet et al., 2015). Hence, it is important to understand employability of graduates these institutions produce. The present study was conducted to 1) investigate employability skills that employers, university lecturers and final-year undergraduates value being brought to the workplace, when graduates are applying for entry-level graduate jobs in the field of information technology (IT) in Sri Lanka, 2) compare differences in expectations across employers, university lecturers and final-year undergraduates, and 3) identify strategies used by employers, university lecturers and final-year undergraduates to minimize any differences. The literature identifies mainly three types of employability skills, i.e., cognitive, intrapersonal, and relational, on which this study is built on.

EMPLOYABILITY SKILLS – EXPECTATIONS, PRIORITIES AND STRATEGIES

When graduates are applying for entry-level graduate jobs, two types of skills are important - employability skills and subject discipline skills (Lim, 2015). The evidence suggests that undergraduates often fail to secure jobs due to the lack of possession of employability skills (see Collet et al., 2015; Pellegrino and Hilton, 2012; Shah et al., 2015; Wright et al., 2010 for review) such as communication abilities, problem-solving ability, and self-confidence. For example, Shah et al. (2015) described five most important skills that should considered when recruiting a graduate for entry level jobs as communication, teamwork, integrity, intellectual ability, and confidence. Hence, employers have high expectations about graduates who are applying for entry-level graduate jobs. Wright et al. (2010, p.43) state that working patterns have changed, so employers should collaborate

more with local education and training providers to ensure academic programs are fit for purpose, reinforcing the need for higher education institutions to provide opportunities to practice their learning, in situations reflecting the workplace and generate "career ready" employable professionals. Based on the complications in identifying employability skills for a specific sector, Pellegrino and Hilton (2012) emphasized the importance of categorizing broad skills descriptions into component elements relevant to the sector and apply quantitative and inductive exploratory analysis to identify perceived gaps between employer's demand for skills and graduates' supply of the same. The previous studies also provide evidence for differences in employability skills expected by employers and skills possessed by graduates who are applying for entry-level graduate jobs (Collet et al., 2015; Sri Lanka ICT Association, 2013; Wickramasinghe and Perera, 2010). There are significant gaps between employer expectations and the entry level graduates' capabilities in Sri Lanka. Skill gaps have implications in placing graduates in appropriate employment and would increase the employers' costs of training newly hired graduates. Based on the above reviewed literature, it is proposed:

    H1: There are significant differences in expectations of employability skills across employers, university lecturers and final-year undergraduates

The previous studies also suggest strategies used by employers, higher education institutes and students to enhance employability skills (Byrom and Aiken, 2014; Lim, 2015; Ministry of Higher Education Malaysia, 2012; Rao, 2015). Rao (2015) stated that the right teaching and training methods will motivate students to acquire the soft skills they need in the world of work; most of the higher education institutes have identified the importance of soft-skills training programs to students because of rising unemployability in India. Lim (2015) and Byrom and Aiken (2014) showed that many higher education institutes embedding employability skills into the curriculum. Ministry of Higher Education Malaysia (2012) stated the importance of work experience and volunteering and involving employers in degree course design and delivery to develop generic skills parallel with academic studies.

METHODOLOGY
The study adopted the survey methodology. Three self-administered survey questionnaires targeting employers, university lecturers and final-year graduates were used for the data collection. Part 1 of all the questionnaires inquired employability skills perceived to be important to bring to the workplace. For the study, 31 employability skills were identified under three categories of cognitive skills, interpersonal skills, and relational skills. These 31 items are shown in Table 1. Respondents rated the skills using a 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Part 2 of all the questionnaires inquired strategies used to improve the skills during the university study period and after the graduation. The items used for each respondent group are shown in Table 2. Respondents rated strategies using a 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). One-way analysis of variance (ANOVA) was used as the main method of analysis to test the hypothesis.

Three representative samples were taken from employer, university lecturer and final-year undergraduate populations and data were collected using three self-administered survey questionnaires. Employers' views were obtained from respective graduate recruiting personnel of 120 firms registered with the Sri Lanka Association of Software and Service Companies (SLASSCOM). Of these, 47% were male and 53% were female. 59% held bachelor's degree as the highest education level while the rest held postgraduate qualifications as the highest education level. 18% had more than 10 years of IT industry experience, 21% had 5-10 years of IT industry experience while 61% had less than 5 years of IT industry experience. Regarding years of experience in the current employment, 5% had more than 10 years of work experience in the current employment, 27% had 5-10 years of work experience in the current employment while 68% less than 5 years of work experience in the current employment. The second sample contains 90 responses from both state-owned and privately-owned university lecturers attached to academic departments offering general or special degrees in computer science and IT, which were pooled using snowball and convenient sampling techniques. Of these, 74% were male and 26% were female. 3% had over 10 years of teaching experience in the specialized

field, 21% had 5-10 years of teaching experience in the specialized field while 76% had less than 5 years of teaching experience in the specialized field. The third sample contains 90 responses from final-year undergraduates studying in the said departments, which were pooled using snowball and convenient sampling techniques. Of these, 67% were male and 33% were female.

RESULTS AND DISCUSSION

Figure 1 shows the results relating to employability skills expected by employers, emphasized by universities, and possessed by final-year undergraduates. The results for cognitive skills for the three samples are shown using a spider diagram in Figure 1, intrapersonal skills in Figure 2, and relational skills in Figure 3.
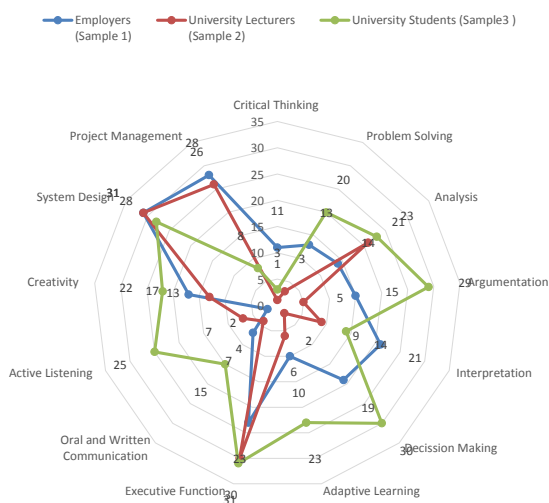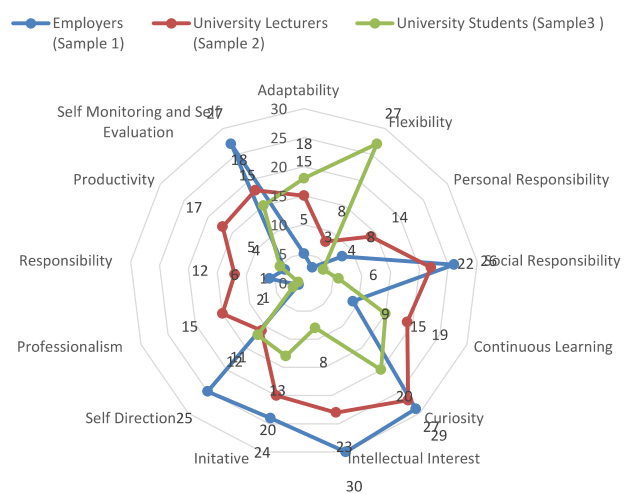

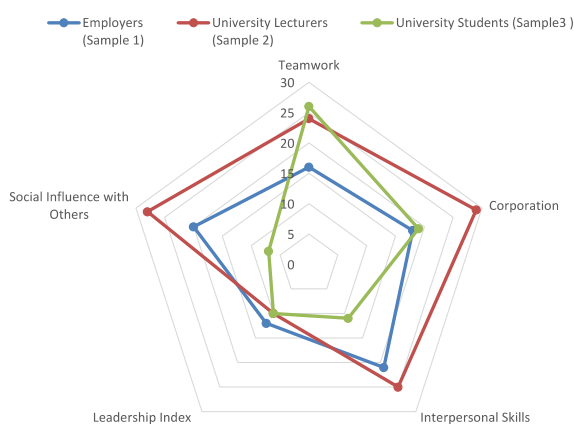Figure 1. Cognitive skills

Figure 2. Intrapersonal skills

Figure 3. Relational skills

As per Figure 1, employers ranked active listening and oral and written communication as the most important two cognitive skills. University lecturers ranked critical thinking and problem solving as the most important two cognitive skills. University students ranked critical thinking and project management as the most important two cognitive skills. As per Figure 2, employers ranked professionalism and flexibility as the most important two intrapersonal skills. University lecturers ranked flexibility and responsibility as the most important two intrapersonal skills. University students ranked professionalism and responsibility as the most important two intrapersonal skills. As per Figure 3, employers as well as university lecturers ranked leadership and teamwork as the most

important two relational skills. University students ranked social influence with others and leadership as the most important two relational skills.

The results of one-way ANOVA test for mean differences are shown in Table 1. As proposed in H1, significant differences exist for most of the employability skills. This partially supports H1.

Table 1. Mean differences between employers, university lecturers, and university students

Skill group	Skill	Significance of mean differences
Cognitive skills	Active listening	E and U (p < .01); L and U (p < .01)
	Oral and written communication	E and L (p < .01); E and U (p < .01); L and U (p < .01)
	Adaptive learning	E and L (p < .01); E and U (p < .05); L and U (p < .01)
	Critical thinking	E and L (p < .01); L and U (p < .01)
	Problem solving	E and L (p < .01); E and U (p < .05); L and U (p < .01)
	Analysis	E and U (p < .05); L and U (p < .05)
	Reasoning/argumentation	E and L (p < .01); E and U (p < .05); L and U (p < .01)
	Creativity	L and U (p < .01)
	Decision making	E and L (p < .01); E and U (p < .05); L and U (p < .01)
	Interpretation	E and L (p < .01); L and U (p < .01)
	Executive function	E and U (p < .05)
	Project management	E and L (p < .05)
	Systems design	E and U (p < .01)
Intrapersonal skills	Professionalism/ethics	E and L (p < .01); E and U (p < .01)
	Flexibility	E and U (p < .01); L and U (p < .01)
	Productivity	E and U (p < .01); L and U (p < .01)
	Adaptability	E and U (p < .01); L and U (p < .01)
	Responsibility	MD not significant.
	Personal responsibility	MD not significant
	Continuous learning	E and U (p < .01); L and U (p < .01)
	Initiative	E and U (p < .05)
	Self-direction	E and L (p < .01); L and U (p < .01)
	Social responsibility	MD not significant
	Self-monitoring and self-evaluation	E and L (p < .01; L and U (p < .01)
	Curiosity	E and L (p < .01)
	Intellectual interest	E and L (p < .01); E and U (p < .05)
Relational skills	Leadership	E and U (p < .01); L and U (p < .01)
	Teamwork	MD not significant.
	Cooperation	MD not significant.
	Social influence with others	MD not significant.
	Interpersonal skills	MD not significant.

Notes: Shows mean differences (MD) between each group, E = Employer, U = Undergraduates, L = Lecturers

Respondents were asked about strategies used to minimize skill gaps. These strategies are listed in Table 2. As presented in the section on methodology, respondents rated each strategy on a 5-point Likert scale ranging from strongly agree (5) to strongly disagree (1). Strategies were ranked based on the mean values.

Table 2. Strategies used by employers, universities, and undergraduate students in rank order

When	Strategies used by employers	Strategies used by universities	Strategies used by students
During the study period	▪ Conducting seminars/workshops to students [1] ▪ Provide realistic job preview [4]	▪ Invite practitioners to provide inputs to program design [2] ▪ Establish job placement assistance unit [3] ▪ Obtain assistance from alumni	▪ Participate in industrial visits organized by university [2] ▪ Engagement in Faculty/department

		association [4] ▪ Invite practitioners as guest speakers [5] ▪ Conduct graduate orientation program [7]	alumni activities [3] ▪ Maintaining good relationship with passed out seniors of the university [4]
During employment/ After graduation	▪ Provide skill development training programs [2] ▪ Conduct effective orientation programs [3]	▪ Invite successful graduates to give seminars [1] ▪ Monitor and assist graduates' job search [6] ▪ Mock interviews/tests [8]	▪ Attending training courses using own funds [1]

Note: Rank is shown in brackets

CONCLUSIONS

The purpose of the study was to investigate employability skills that employers, university lecturers and final-year graduates' value being brought to the workplace, when graduates are applying for entry-level graduate jobs in the field of information technology. Study was conducted in Sri Lanka which can be identified as a destination where IT infrastructure and facilities are emerging rapidly. Quantitative research methodology was adopted, and a survey was conducted to gather data and information. Three questionnaires containing the same set of employability skills were distributed among the three samples. According to Figure 1, employers ranked Professionalism as the most important skill followed by Active listening, Flexibility, Productivity, and Adaptability. University lecturers rated Critical thinking as the most important skill followed by Decision making and Problem solving. It can also be noted that all these highly emphasized skills are included in the Cognitive skills category. University students rated Responsibility as the most important skill followed by Professionalism and Critical thinking. When considering the significant differences in expectations, the mean values for Oral and written communication, Adaptive learning, Problem solving, Reasoning/argumentation and Decision making showed significant differences across all three groups - employers, university lecturers and students. University lecturers had given significantly more emphasis exceeding the level of expectations of employers in relation to cognitive skills. Students lack intrapersonal skills and interpersonal skills relative to the expectation level of employers in the industry. However, the mean values for Responsibility, Personal responsibility, Teamwork, Cooperation, Social influence with others, and Interpersonal skills did not show significant differences across the three groups.

The findings also led to identify the strategies suggested by employers, universities, and students to minimize gaps in employability skills (Table 2). Generally, real work situations are different from the expectations of students as well as universities. Organizations and universities should familiarize themselves with the expectations of the industry and formulate such strategies that create win-win situation for both parties. Further, it is appropriate if graduates could market themselves effectively by knowing the requirements of the organization to which they are applying. After being an employee, every graduate should have a clear view of how to maintain the employment and how to survive on the job. Hence, employability skills should be considered as life-long skills for his/her career.

Finally, to summarize, there are significant differences in the priorities given for each skill category by the three groups. University lecturers have given a high emphasis on cognitive skills which significantly exceeds employer expectation. Undergraduates' intra- and interpersonal skills are below employers' expected levels. There are some key strategies used by each party to enhance employability skills during the university tenure and after graduation. The findings highlighted the importance of graduates marketing themselves effectively to meet employment requirements. Overall, undergraduates must have a clear view of how to secure employment, maintain the employment and survive on the job.

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