

Research Article

The Relationship between Work Readiness Skills, Career Self-efficacy and Career Exploration among Engineering Graduates: A Proposed Framework

Bilal Iftikhar Makki, Rohani Salleh, Mumtaz Ali Memon and Haryanni Harun

Department of Management and Humanities, Unvieristi Teknologi PETRONAS, 32610 Bandar Seri Iskandar, Perak, Malaysia

Abstract: Industrial revolution and globalization expect graduates to be skilled and equipped before getting into the workplace. However, engineering graduates often find it hard to explore their career due to their skill deficiencies, as well as low self-belief. In fact, the difficulties graduates face at the entry level of career negatively affects their level of confidence. The present study discusses several employability skill sets from existing studies and proposes a conceptual framework that integrates engineering graduates' work readiness skills, career self-efficacy and career exploration. More specifically, the objective of this study is to conceptualize the interrelationship between work readiness skills, career self-efficacy and career exploration. Recommendations for future research are also proposed.

Keywords: Career exploration, career self-efficacy, work readiness skills

INTRODUCTION

Malaysia is well on its way towards attaining the status of a developed nation (Leong *et al.*, 2010). High skilled workers with appropriate employability skills are needed to fulfill the workforce demand of the country. Individuals who update themselves with the current knowledge and have the competency to develop new expertise can survive in today's complex labor market (Thijssen *et al.*, 2008). However, Malaysia is currently facing a shortage of skilled labor force among local graduates, mainly due to the lack of appropriate job skills (Leong *et al.*, 2010). There has been concern that a large segment of today's workforce does not have the required skills as desired by employers (Clark, 2013).

In addition, employers today are concerned about finding workers who not only have basic academic skills but also higher order thinking skills (learning, reasoning, thinking creatively, decision making, problem solving), self-confidence, self-control, team spirit, health and safety habits, management skills, conflict resolution skills and many more (Holmes, 2001; Nayan, 2010; Smith and Krüger, 2011; Warn and Tranter, 2001). Employers give preferential attention to employability skills above specific occupational skills or technical knowledge (Abas-Mastura *et al.*, 2013). Hence, Higher Education Institutes (HEIs) play a significant role in meeting employers' expectations by producing graduates that attain the requirements of industry (Abas-Mastura *et al.*, 2013; Robinson *et al.*, 2007; Valo, 2000).

According to Bandura (1977), one can be employed only if he has belief and confidence on different possibilities to get employed, which is related to self-efficacy. In this context, career self-efficacy is the individual's judgment about their capabilities on how they perform their career behaviors (Anderson and Betz, 2001). Thus, self-efficacy has a great impact on career-related activities. Several studies have reported significant relationship between career self-efficacy beliefs and career exploration activities (Betz and Voyten, 1997; Dawes *et al.*, 2000; Foltz and Luzzo, 1998). Past research also claimed that career exploration activities are one of the ways to support students' success in higher education (Blair, 2012).

The present study discusses several employability skill sets from existing studies and proposes a conceptual framework that integrates engineering graduates' work readiness skills, career self-efficacy and career exploration. Specifically, the objective of this study is to conceptualize the interrelationship between work readiness skills, career self-efficacy and career exploration. A brief discussion on the constructs is provided in the next Section.

LITERATURE REVIEW

Employability skills: Employability refers to the ability and capability to gain initial employment, maintain employment and obtain new employment, if required (Hillage and Pollard, 1998). Employability skills are referred to as knowledge, skills and the ability to enter workplace and retain the job (Rosenberg *et al.*,

Corresponding Author: Bilal Iftikhar Makki, Department of Management and Humanities, Unvieristi Teknologi PETRONAS, 32610 Bandar Seri Iskandar, Perak, Malaysia

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2012). The Conference Board of Canada (CBC) divided employability skills into five categories, namely; transferable, general, essential, generic and core competencies (Carner-Lotto and Barrington, 2006). On the other hand, Shukla (2012) separated employability skills into three skill sets; basic academic skills, high-order thinking skills and personal qualities. According to Smith and Krüger (2011), personal qualities, problem-solving, decision-making skills, relationship with others, communication skills, task-related skills, maturity, health and safety habits as well as commitment to the job, are the competency areas of employability skills. Zinser (2003) considered communication, interpersonal skills and effective management of resources, teamwork, problem-solving skills along with the acquisition and retention of a job as the most important elements of employability skills. Another study indicated that employability skills consist of basic skills, thinking skills, resource skills, informational skills, interpersonal skills, system and technology and personal quality skills (Omar *et al.*, 2012).

A framework on Malaysian Engineering Employability Skills (MEES) has been proposed to align employability skills with engineering attributes and employment (Zaharim *et al.*, 2010). This framework consists of personal attributes, personal qualities and skills to facilitate engineering graduates that join the workforce to have the package required by employers and a prospect of a progressive career path. However, each industrial sector is not similar in nature and may have its own preferences. Hence, different industries may not share mutual consensus on the skill sets graduates should possess (Pillai *et al.*, 2012).

In general, extensive literature is available on workplace skills. However, there is a disagreement among the scholars regarding the skills that a graduate must possess in order to attain and secure the entry level job. As proposed by Thijssen *et al.* (2008), the significance and development of employability skills will not lose its importance even if the terminology is replaced with any other term. Besides employability skills, different terminologies have been used to describe the skills demanded by employers, including transferable skills, career skills and work readiness skills (O'Neil *et al.*, 1997; Smith and Krüger, 2011; Zinser, 2003).

Work readiness skills: Employers place high importance in work readiness. According to Mason *et al.* (2009), work readiness is the possession of skills, knowledge, attitudes and commercial understanding that will enable new graduates to productively contribute towards the achievement of the organization's objectives. Students' achievements, skills and knowledge have been important elements in educational institutions with regard to work readiness (Grummon, 1997). The Work Readiness Standards and Benchmarks (ACT, 2013) presented a framework to line up education and training according to the requirement of existing jobs. In that framework, they indicated that individuals who are work-ready must have the initial skills as well as the minimum qualification for a specific occupation (ACT, 2013). Raftopoulos *et al.* (2009) asserted that employers and graduates should have consensus regarding work readiness skills on self-discipline, confidence, leadership, numeracy skills and problem solving skills. Workplace readiness inventory has been described through workplace readiness traits including adopting a new culture, acknowledging skills, working in a group, adopting new skills and change, good work ethics, attention towards health and meeting the expectations of the workplace. These traits consist of responsibility, flexibility, communication, self-view, health and safety habits (Brady, 2010). In European business schools, workplace readiness is also encouraged to enhance the mobility of their graduates and to produce flexible, skilled, qualified and employable individuals that fulfill the requirement of modern European businesses (Andrews and Higson, 2008).

A 25-year research work in the University of Virginia shows that there is high demand for workplace readiness skills in the Commonwealth countries and as a result, they developed the Commonwealth workplace readiness skills. The Commonwealth work readiness skills represent the combination of three aspects which are personal qualities and people skills, professional knowledge and skills and technology knowledge and skills. These three sections have 21 skills detailed in Table 1.

The Commonwealth work readiness skills set is comprehensive because it comprises of traits, employability skills: attributes, generic skills and technical skills. It is expected that the graduates who possess these skills will be more confident about their

Table 1: Commonwealth work readiness skills

Personal qualities and people skills	Professional knowledge and skills	Technology knowledge and skills
<ul style="list-style-type: none"> • Positive work ethics • Integrity • Team work • Self-representation • Diversity awareness • Conflict resolution • Creativity and resourcefulness 	<ul style="list-style-type: none"> • Speaking and listening • Reading and writing • Critical thinking and problem solving • Health and safety • Organization system and climate • Lifelong learning • Job acquisition and advancement • Time task and resource management • Mathematics • Customer services 	<ul style="list-style-type: none"> • Job specific technology • Information technology • Internet use and security • Telecommunication

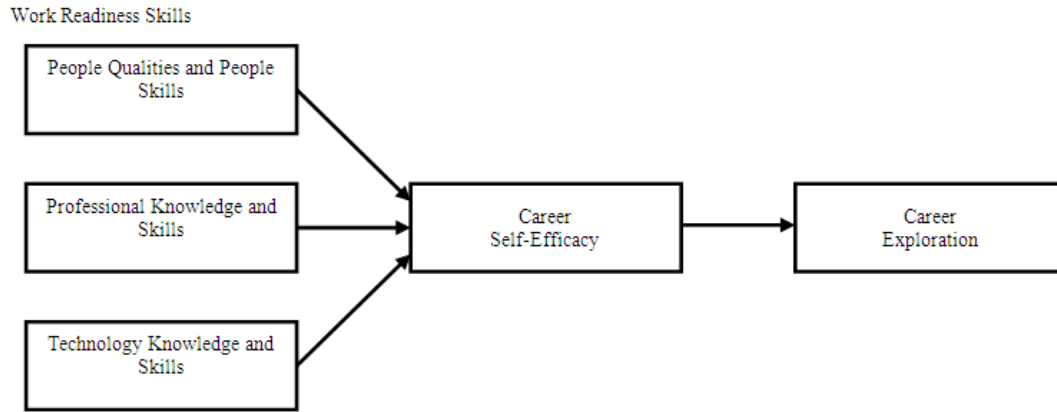


Fig. 1: Proposed conceptual framework

competencies and beliefs, leading them to have high self-efficacy.

Career self-efficacy: Employability is also related with self-efficacy, the individual's self-confidence in their capabilities for obtaining employment (Coetzee and Oosthuizen, 2012). The main concern of self-efficacy concept is one's own belief in his or her competencies (Bandura, 1977). Self-efficacy encourages individual thinking, motivation and behavior (Bandura, 1993). Career self-efficacy theory was developed to describe the implication of self-efficacy towards career-related behaviors (Betz and Hackett, 1981). Career self-efficacy is the individual's judgment about their capabilities on how they perform in connection with career development and career choices (Anderson and Betz, 2001; Niles and Sowa, 1992). People who possess high career self-efficacy are more ambitious towards their career life and always speak with positive attitude and can as well visualize success for themselves (Bandura, 1993). Those who have low career self-efficacy do not have the ability to make career-related decision, which usually leads to a delay in career decision-making (Betz, 1992).

Career self-efficacy beliefs promote favorable career outcome expectations, encourage career choice actions or career behaviors and career exploration which are necessary to make progress towards career goals (Lent *et al.*, 1994). As for job searching and other career behaviors, career self-efficacy is found to be the best predictor (Niles and Sowa, 1992). This is further supported by another study that showed job search and re-employment are positively correlated with career self-efficacy (McArdle *et al.*, 2007).

Career exploration: Career exploration is a purposive and cognitive behavior that allows access to information about occupations, jobs or organizations (Berlyne, 1966). Initially, career exploration concept was established as part of a development process of middle school youth. Nowadays, the concept is considered as a dynamic process for all developmental stages of career (Super, 1980). Career exploration

activities such as informational interviews, career information sessions, job site tours and internship, expose graduates with career opportunities and options (Johnston, 2006). Career exploration is one of the stages in career development and the other stages are self-assessment, gaining professional experience and plan implementation (Prehar and Ignelzi, 2012). A recent study discovered that a low level of career exploration creates difficulties in search for a career thus many job categories remain unknown for the candidates (Forstenlechner *et al.*, 2014). In summary, review of the literature suggested that acquiring adequate work readiness skills and individual's beliefs in their capability and competency will lead to effective career exploration.

METHODOLOGY

Based on the literature review, a framework is proposed to integrate the workplace readiness skills, career self-efficacy and career exploration. It is believed that work readiness skills indirectly predict engineering graduates' career exploration behavior via self-efficacy. Figure 1 shows the proposed framework of the study.

The following hypotheses are proposed:

- H1:** People qualities and people skills have a positive and significant impact on career self-efficacy.
- H2:** Professional knowledge and skills have a positive and significant impact on career self-efficacy.
- H3:** Technology knowledge and skills have a positive and significant impact on career self-efficacy.
- H4:** Career self-efficacy has a positive and significant impact on career exploration.

CONCLUSION

Review of the literature has revealed that the current set of employability skills does not adequately address the needs of employers. Malaysian graduates have been considered lacking in confidence, positive attitudes and skills to prepare for a job search.

Graduates also seem to put below par efforts on career exploration.

The proposed framework integrates workplace readiness skills, career self-efficacy and career exploration. This framework can be utilized as an assessment tool to evaluate the graduates' level of work readiness skills. It will also be helpful in assisting graduates to enhance their skills as required by the labor market. Also, by acquiring work readiness skills, graduates' confidence level will be enhanced and they can explore their career life more confidently. Practically, the framework can also be used as a guide for the higher educational institutions to design better curriculum in order to meet the industry's requirements. It is therefore recommended that the framework be empirically measured to examine the proposed hypotheses.

REFERENCES

- Abas-Mastura, M., O.A. Imam and S. Osman, 2013. Employability skills and task performance of employees in government sector. *Int. J. Hum. Soc. Sci.*, 3(4): 150-162.
- ACT, 2013. Work Readiness Standards and Benchmarks. ACT, Retrieved from: <http://www.act.org/research/policymakers/pdf/Work-Readiness-Standards-and-Benchmarks.pdf>.
- Anderson, S.L. and N.E. Betz, 2001. Sources of social self-efficacy expectations: Their measurement and relation to career development. *J. Vocat. Behav.*, 58(1): 98-117.
- Andrews, J. and H. Higson, 2008. Graduate employability, 'soft skills' versus 'hard' business knowledge: A European study. *High. Educ. Eur.*, 33(4): 411-422.
- Bandura, A., 1977. Self-efficacy: Toward a unifying theory of behavioral change. *Psychol. Rev.*, 84(2): 191.
- Bandura, A., 1993. Perceived self-efficacy in cognitive development and functioning. *Educ. Psychol.*, 28(2): 117-148.
- Berlyne, D.E., 1966. Curiosity and exploration. *Science*, 153(3731): 25-33.
- Betz, N.E., 1992. Counseling uses of career self-efficacy theory. *Career Dev. Q.*, 41(1): 22-26.
- Betz, N.E. and G. Hackett, 1981. The relationship of career-related self-efficacy expectations to perceived career options in college women and men. *J. Couns. Psychol.*, 28(5): 399.
- Betz, N.E. and K.K. Voyten, 1997. Efficacy and outcome expectations influence career exploration and decidedness. *Career Dev. Q.*, 46(2): 179-189.
- Blair, E.J., 2012. The impact of career exploration upon the success of underrepresented students in higher education. Thesis, Capella University.
- Brady, R.P., 2010. Work Readiness Inventory. JIST Works Publishing, Indianapolis, IN.
- Carner-Lotto, J. and L. Barrington, 2006. Are they really ready to work? Employer's perspectives on the basic knowledge and applied skills of new entrants to the 21st century US workforce. The Conference Board. Retrieved from: http://www.p21.org/storage/documents/FINAL_REPORT_PDF09-29-06.pdf.
- Clark, H., 2013. A comprehensive framework for measuring skills gaps and determining work readiness. *Employment Relat. Today*, 40(3): 1-11, Doi: 10.1002/ert.21416
- Coetzee, M. and R.M. Oosthuizen, 2012. Students' sense of coherence, study engagement and self-efficacy in relation to their study and employability satisfaction. *J. Psychol. Afr.*, 22(3): 315-32.
- Dawes, M.E., J.J. Horan and G. Hackett, 2000. Experimental evaluation of self-efficacy treatment on technical/scientific career outcomes. *Brit. J. Guid. Couns.*, 28: 87-99.
- Foltz, B.M. and D.A. Luzzo, 1998. Increasing the career decision-making self-efficacy of nontraditional college students. *J. College Couns.*, 1(1): 35-44.
- Forstenlechner, I., H. Selim, Y. Baruch and M. Madi, 2014. Career exploration and perceived employability within an emerging economy context. *Human Resour. Manage.*, 53(1): 45-66.
- Grummon, P.T.H., 1997. Assessing students for workplace readiness. National Center for Research in Vocational Education, University of California at Berkeley, Berkeley, CA, pp: 6.
- Hillage, J. and E. Pollard, 1998. Employability: Developing a Framework for Policy Analysis. Department for Education and Employment, London, ISBN: 085522889X, pp: 54.
- Holmes, L., 2001. Reconsidering graduate employability: The 'graduate identity' approach. *Qual. High. Educ.*, 7(2): 111-119.
- Johnston, S.M., 2006. *The Career Adventure*. Pearson Education, New Jersey.
- Lent, R.W., S.D. Brown and G. Hackett, 1994. Toward a unifying social cognitive theory of career and academic interest, choice and performance. *J. Vocat. Behav.*, 45(1): 79-122.
- Leong, P.C., R. Narunan and S. Sim, 2010. Background Paper for Malaysia: Skills Development in the Workplace in Malaysia. Proceeding of the ILO/SKILLS-AP/Japan Regional Technical Workshop and Study Programme on Skills Training in the Workplace. Overseas Vocational Training Association, Chiba, Japan.
- Mason, G., G. Williams and S. Cranmer, 2009. Employability skills initiatives in higher education: What effects do they have on graduate labor market outcomes? *Educ. Econ.*, 17(1): 1-30.

- McArdle, S., L. Waters, J.P. Briscoe and D.T.T. Hall, 2007. Employability during unemployment: Adaptability, career identity and human and social capital. *J. Vocat. Behav.*, 71(2): 247-264.
- Nayan, S., 2010. Employability awareness among Malaysian undergraduates. *Int. J. Bus. Manage.*, 5(8).
- Niles, S.G. and C.J. Sowa, 1992. Mapping the nomological network of career self-efficacy. *Career Dev. Q.*, 41(1): 13-21.
- Omar, M., A. Bakar and A.M. Rashid, 2012. Employability skill acquisition among Malaysian community college students. *J. Soc. Sci.*, 8(3): 472.
- O'Neil, H.F., K. Allred and E.L. Baker, 1997. Review of Workforce Readiness Theoretical Frameworks. In: O'Neil, H.F. (Eds.), *Workforce Readiness Competencies and Assessment*. Lawrence Erlbaum Associates, Inc., New Jersey, pp: 3-25.
- Pillai, S., M.H. Khan, I.S. Ibrahim and S. Raphael, 2012. Enhancing employability through industrial training in the Malaysian context. *High. Educ.*, 63(2): 187-204.
- Prehar, C.A. and D.A. Ignelzi, 2012. Reaching psychology majors early about the importance of career planning a classroom presentation. *Teach. Psychol.*, 39(2): 125-127.
- Raftopoulos, M., S. Coetzee and D. Visser, 2009. Work-readiness skills in the fasset sector. *SA J. Hum. Resour. Manage.*, 7(1): 8.
- Robinson, J.S., B.L. Garton and P.R. Vaughn, 2007. Becoming employable: A look at graduates' and supervisors' perceptions of the skills needed for employability. *NACTA J.*, 51(2): 19-26.
- Rosenberg, S., R. Heimler and E.S. Morote, 2012. Basic employability skills: A triangular design approach. *Educ. Train.*, 54(1): 7-20.
- Shukla, D., 2012. Employability skill among professionals-chagrin of HR executives in Indian labor market: A study on engineering graduates of Bhopal city. *VSRD Int. J. Bus. Manage. Res.*, 2: 418-427.
- Smith, E.E. and J. Krüger, 2011. A critical assessment of the perceptions of graduates regarding their generic skills level: An exploratory study. *S. Afr. J. Econ. Manag. S.*, 11(2): 121-138.
- Super, D.E., 1980. A life-span, life-space approach to career development. *J. Vocat. Behav.*, 16(3): 282-298.
- Thijssen, J.G., B.I. Van der Heijden and T.S. Rocco, 2008. Toward the employability-link model: Current employment transition to future employment perspectives. *Hum. Res. Dev. Rev.*, 7(2): 165-183.
- Valo, M., 2000. Experiencing work as a communications professional: Students' reflections on their off-campus work practice. *High. Educ.*, 39(2): 151-179.
- Warn, J. and P. Tranter, 2001. Measuring quality in higher education: A competency approach. *Qual. Higher Educ.*, 7(3): 191-198.
- Zaharim, A., M. Omar, Y. Yusoff, N. Muhamad, A. Mohamed and R. Mustapha, 2010. Practical framework of employability skills for engineering graduate in Malaysia. *Proceeding of the IEEE Education Engineering (EDUCON)*. Madrid, pp: 921-927.
- Zinser, R., 2003. Developing career and employability skills: A US case study. *Educ. Train.*, 45(7): 402-410.