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Employability skills required by the 21st-century workplace: a literature review of labour market demand

I Made Suarta, I Ketut Suwintana, I G P Fajar Pranadi Sudhana, Ni Kadek Dessy Hariyanti
Politeknik Negeri Bali
Badung, Indonesia
madesuarta@pnb.ac.id

Abstract—This paper discusses the importance employability skills of graduates in entering the workforce according to employers' perceptions, through a literature review. In 21st century workplace, the occupation-specific skills are no longer sufficient for graduates to meet the needs of labour markets. Workers are nowadays expected to have an additional set of skills and attributes, called employability skills. Employability skills become a very important issue at the national, regional, and international labour market. The literature review found a number of employability skills attribute required by graduates in entering the workforce. Communication skills, problem-solving and decision-making skills, and teamwork skills are the attributes of employability skills with highest importance level. Graduates are also expected to have a number of personal attributes included: self-awareness, self-confidence, independence, emotional intelligence, flexibility and adaptability, stress tolerance, creativity and initiative, willingness to learn, reflectiveness, lifelong learning, and professional behaviour.

Keywords— labour market; 21st-century workplace; employability skills; personal attributes.

I. INTRODUCTION

The main barriers to higher education graduates in entering the world of work are the gap between the graduate job skills and the skills needed in the workplace. The workforce in the 21st century not only requires graduates with high academic qualifications as represented by the subject and degree class but also equipped with a number of skills and attributes. Employer surveys indicate that occupation-specific skills are no longer sufficient for graduates to meet the needs of national labour markets [1]. In addition to basic and specific knowledge and skills, workers are nowadays expected to have an additional set of skills. A number of skills and attributes also called employability skills, are required by students to prepare themselves to meet the needs of various occupations after graduation. Employability skills are considered one missing link between education and training and the world of work.

The current working environment differs from the previous age. The global job market characterized by change and increased competition for jobs. Research conducted by Think Global and British Council found that for job seekers, knowledge and awareness of the wider world are more important than degree classification [2]. Today's global

competition and the process of new management required the employee to have critical thinking, able to solve problems besides excellent in communication skills. In order to respond the technology advances and the competitive world of work, it is necessary to prepare graduates to have the skills and ability to adapt working environment [3]. Employability becomes very important as it facilitates them to move from one job to another, within and between organizations.

The importance of employability skills is increasingly emphasized in recent times. Employability skills are a group of essential abilities that involve the development of a knowledge base, expertise level and mindset that is increasingly necessary for success in the modern workplace [4, 5]. Employability skills are typically considered essential qualifications for many job positions and hence have become necessary for an individual's employment success at just about any level within a business environment [6]. According to the American Management Association, employability skill attributes such as critical thinking and problem-solving, creativity and innovation, collaboration, and communication skills are becoming increasingly important in today's global economy [7]. Other research also shows the employability skills essential for career success of graduates in the workplace [8, 9]. Skills such as communication, problem-solving, decision-making, analytical and critical thinking, synthesizing information, teamwork, interpersonal, and continuous learning are some of the employability skill attributes required by graduates in entering the workforce [10], as well as being a prerequisite for professional recognition.

Employability skills become a very important issue at the national, regional, and international labour market. Employability skills are considered one missing link between education and training and the world of work. Labor market as one of the driving forces of the content and quality of education attributes high value to international recognition of qualifications and education. Since labour market uses and applies the learning outcomes in real life, quality of education and training policy cannot exist separately from it. The pressure of global competition means that graduates need to offer an employer more than academic skills traditionally represented by the subject and degree class. Since the 1990s, there were numerous reports from government, industry, higher education agencies and researchers urged the higher education



sector to bring employability skills into the students' learning experience [11]. The reports suggest that the universities and colleges should plan to support graduates in developing the skills of employability, which represent graduates' work readiness.

In 21st century workplace, important for higher education institutions to design and implement programs that are appropriate to the missions and goals to supply the workforce relevant to the needs of stakeholders or employers. Higher vocational education has the responsibility to provide graduates with knowledge in the professional field with intellectual skills and ability to apply theory to practical situations. This paper becomes part of the author's concern in developing higher vocational education, in order to prepare graduates to have knowledge-specific skills and also have employability skills. This paper discusses labour market demand on employability skills, the important attributes of employability skill needed in the workplace. The purpose of the discussion is to review the labour market demand for employability skills, the important attributes of employability skills needed in the workplace.

II. THE EMPLOYABILITY SKILLS FRAMEWORK

Various terminologies are currently used within the international research community to refer the category of employability skills. The term of employability skills has gained prominence of late because of the changing world of work. Employability is used interchangeably with other terms such as generic skills, transferable skills, non-technical skills, core skills, key skills, essential skills, and 21st-century skills. These skills were seen to have relevance to both entry-level and established employees. Employability skills framework has been developed in many countries. This framework describing the need for employability skills, and outlining some existing definitions. Some of which are described below.

In 2001, Australian Department of Education, Science and Training (DEST) and Australian National Training Authority

(ANTA) commissioned a project that gathered the views of industry on the critical generic skills required in Australian workplaces. The report from the Australian Chamber of Commerce and Industry (ACCI) and the Business Council of Australia (BCA), defines employability skills are skills required not only to gain employment but also to progress within an enterprise so as to achieve one's potential and contribute successfully to enterprise strategic directions [12]. Framework, Employability Skills outlined Employability skills for the future, provides the starting point for any discussion of employability skills in higher education in Australia. The report identified personal attributes required for today's employees and eight skill groups to describe and define employability skills. The eight skill groupings are (1) communication skills, (2) teamwork skills, (3) problem-solving skills, (4) initiative and enterprise skills, (5) planning and organizing skills, (6) self-management skills, (7) learning skills, and (8) technology skills. Personal attributes are terms used to describe a set of non-skill-based behaviours and attitudes that employers felt were as important as the employability skills and other technical or job-specific skills. The personal attributes included loyalty, commitment, honesty and integrity, enthusiasm, reliability, personal presentation, commonsense, positive self-esteem, sense of humour, balanced attitude to work and home life, ability to deal with pressure, motivation, and adaptability.

The Learning and Employability Series offers a wide range of perspectives on the employability of graduates. In this documents, employability defined as a set of skills, knowledge and personal attributes that make an individual (graduates) more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy" [13]. The employability skills framework consists of personal qualities, core skills, and process skills. Each skill groups made up of a number of aspects (Table I).

TABLE I. LIST OF EMPLOYABILITY ASPECTS

Personal Qualities	Core Skills	Process Skills	
Malleable self-theory	Reading effectiveness	Computer literacy	
Self-awareness	Numeracy	Commercial awareness	
Self-confidence	Information retrieval	Political sensitivity	
Independence	Language skills	Ability to work cross-culturally	
Emotional intelligence	onal intelligence Self-management Ethical sensitivity		
Adaptability	Critical analysis	Prioritizing	
Stress tolerance	Creativity	Planning	
Initiative	Listening	Applying subject understanding	
Willingness to learn	Written communication	Acting morally	
Reflectiveness	Oral presentations	Coping with complexity	
	Explaining	Problem solving	
	Global awareness	Influencing	
		Arguing	
		Resolving conflict	
		Decision-making	
		Negotiating	
		Teamwork	

Adapted from Yorke & Knight (2006) "Embedding employability into the curriculum".

UNESCO Bangkok with the support of Japanese Funds-in-Trust and UNESCO Jakarta coordinated a study on the employability of university graduates in selected countries in Asia. The study aimed to analyze the factors that have an



impact on graduate employability and to identify policies and strategies that have been put in place by universities to prepare and train their graduates to meet the demands of the workplace. The main findings of the employability concept in Asia is refers to a wide range of attributes and competencies that enable the job seekers to gain and maintain employment such as, but not limited to, the following: (1) communication skills; (2) logical, analytical and problem-solving skills; (3) personality, confidence, and integrity; (4) flexibility and adaptability; (5) innovation and creativity; and (6) team spirit [14]. These skill groups vary among countries in Asia.

Specifically the employers' perspective in Indonesia, identified the kind of skills are important to help graduate entering the world of work such as (1) communication skills; (2) teamwork skills; (3) integrity; (4) intellectual capacity; (5) self-confidence; (6) personality / individual character; (7) planning skills; (8) writing skills; (9) computing skills; (10) analytical and problem-solving skills; and (11) other skills [15]. Previous studies concluded supervisors perceived the most important skills consist of workplace health and safety skills, self-management skills, teamwork skills, learning skills, technology skills, and problem-solving skills [16].

The concept of employability in Malaysia emphasized on three aspects: (a) the ability to gain initial employment, (b) the ability to maintain employment and make 'transitions' between jobs and roles within the same organization to meet new job requirements, and (c) the ability to obtain new employment if required, to be independent in the labor market by being willing and able to manage employment transitions between

and within organizations. To meet these concept of employability, higher education graduates are expected to have general attributes including the following: (1) critical and creative thinking; (2) preparedness to serve others; (3) personal transferable skills: (a) managing tasks and solving problems (analytical and conceptual thinking, gathering information to assist problem solving and decision making); (b) working with others (understanding how others perceive themselves and the needs of others, and building positive relationships); (c) communication (oral and written); and (d) self-awareness (taking responsibility for one's own learning and development; dealing with pressures and emotions; and showing sense of purpose); (4) cognitive, emotional and moral development and practical competence [17].

In the last decade, many education systems in the Asia-Pacific region have integrated "the transversal competencies", as generic skills are critical for people to meet the new needs of society and compete in the global workforce. UNESCO Bangkok's new publication examines how different countries and economies in the Asia-Pacific region define and apply such transversal competencies in their education policies and practices. The research conducted by Education Research Institutes Network (ERI-Net) concluded UNESCO Framework for Transversal Competencies consisting of five broad domains of skills, competencies, values and/or attributes. These are (1) critical and innovative thinking; (2) interpersonal skills; (3) intra-personal skills; (4) global citizenship; and (5) media and information literacy [18]. Each domain of transversal competencies consists of a number of skill attributes (Table II).

TABLE II.	UNESCO FRAMEWORK FOR TRANSVERSAL COMPETENCIES
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Domains	Examples of key skills and competencies		
Critical and innovative thinking	Creativity, entrepreneurship, resourcefulness, application skills, reflective thinking, reasoned		
	decision-making		
Inter-personal skills	Communication skills, organizational skills, teamwork, collaboration, sociability, collegiality,		
	empathy, compassion		
Intra-personal skills	Self-discipline, ability to learn independently, flexibility and adaptability, self-awareness,		
	perseverance, self-motivation, compassion, integrity, risk-taking, self-respect		
Global citizenship	Awareness, tolerance, openness, responsibility, respect for diversity, ethical understanding,		
	intercultural understanding, ability to resolve conflicts, democratic participation, conflict		
	resolution, respect for the environment, national identity, sense of belonging		
Media and information literacy	racy Ability to locate and access information through ICT, media, libraries and archives, express and		
	communicate ideas through ICT, use media and ICT to participate in democratic processes, ability		
	to analyze and evaluate media content.		

III. LABOR MARKET DEMAND ON EMPLOYABILITY SKILLS

As stated earlier in this paper, employability skills refer to a set of generic skills and personal attributes used in tandem with the application of technical knowledge-skills in the workplace. Most importantly, these skills are not jobbed specific but are skills which cut horizontally across all industries and vertically across all jobs at all levels. These skills also required by the

21st-century workplace which is necessary for career success at all levels of employment and for all levels of education.

In the following section, the authors summarize the results of previous studies. The summary focused on the attributes of employability skills required by graduates to enter the world of work as perceived by the employer or supervisor at the workplace. The results are shown in Table III.



TABLE III. SUMMARY OF RESEARCH ON EMPLOYABILITY SKILLS

Focus Research	Methods	Approach	Employability Skill Attributes
Employers' perspective [19]	The questionnaire, the respondents consisted of 180 employees in various fields of engineering.	The instruments used in this study were adapted from the SCANS model.	The analysis showed that personal quality is the highest mean values followed by interpersonal skills, resources skills, basic skills, information skills, thinking skills, and system and technology skills.
Graduates and employers perception [20]	The questionnaire to assess the information perceived by graduates and employers. There were 34 graduates and 29 employees who returned the questionnaire.	The instrument used in this study adapted from Survey of the Employability Skills Needed in the Workforce, originally designed by J. Shane Robinson.	Problem-solving and analytic, decision-making, organization and time management, communication ability, interpersonal skills, leadership and influence, creativity, innovation, flexibility and ability to conceptualize, lifelong learning, professional behaviour, motivation-personal strength.
Examines employers and instructors' perspectives [21]	The data was collected using a questionnaire which was analyzed using descriptive and inferential analysis.	Focusing on seven core skills comprising communication skills; critical thinking and problem-solving skills; teamwork skills; lifelong learning and information management; integrity and professional ethics; entrepreneurship skills; and leadership skills.	The highest ranked perceived by employers and university instructors are communication skills, and integrity & professional ethics. The lowest ranked are leadership skills and entrepreneurship skills.
Investigates the importance of employability skills as perceived by employers [22]	The data was collected using a questionnaire. Employers participating in this research was an operational manager, supervisor and chief executive.	The instruments used in this study were adapted from the SCANS model, Employability Skills 2000+ form Conference Board of Canada, and Malaysian Qualifications Framework (MQF).	The findings of the study showed that employers place great importance on communication skills, problem-solving skills, teamwork skills and personal qualities. Graduates also need to emphasis on leadership skills, entrepreneur skill, technical skill and informational skills

IV. THE MOST IMPORTANT OF EMPLOYABILITY SKILL ATTRIBUTES

The importance of employability skills is increasingly emphasized in recent times. Presently, employers want to recruit graduates not only with technical skills, as represented by the subject and degree class but also with their employability skills. Graduates' attributes are more important than the graduates 'degree subjects. Based on the results shown in Table 1, communication skills, problem-solving skills, teamwork skills and personal qualities that are the most important skills attributes to enter the workplace in recent time. Here is a summarizes of important facets of employability skill attributes.

Communication Skills

Communication is the process that occurs between two or more people in which a message is delivered and received by the other party. Communication happens every day in the workplace, such as managers give direction to workers, coworkers communicate to plan a project and employees communicate information to customers. The ability to communicate is one of the employability skill attribute necessary for a graduate's success in entering the workforce. A job candidate with good communication skills could be selected over the candidate [23]. Various studies report the ability to communicate is very beneficial for employees and organizations [7, 24, 25]. Communication skills that contribute to productive and harmonious relations between employees and customers, and are critical to career success and contribute significantly to organizational success [26].

Communication skills relate to one's ability in the context of speaking, listening, writing and reading. In order to be able to communicate effectively, a graduate or job seeker must mastery in all domains of communication skill.

Communication skills groups consist of a number of facets: (a) listen effectively, (b) communicate accurately and concisely, (c) effective oral communication, (d) communicate pleasantly and professionally, (e) effective written communication, (f) ask good question, and (g) communicate appropriately and professionally using social media [23].

Decision-Making and Problem-Solving Skills

A problem is any difference between an actual situation and the desired situation. Problem-solving is the process of identifying a discrepancy between an actual and desired state of affairs and then taking action to resolve the deficiency or take advantage of the opportunity. In contrast, decision-making is a selection process where one of two or more possible solutions are chosen to reach the desired goal [27]. Decision-making refers to the choice of the most appropriate solution among possible alternatives. The steps in both problems solving and decision making are quite similar, and both processes have been characterized as complex processes in which an individual identifies and evaluates several alternative courses of action and selects an alternative for the purpose of implementation. In fact, the terms are sometimes used interchangeably.

Problem-solving and decision-making are important skills for business and life. In order to compete, job seekers in the 21st century must be able to find logical solutions to the problems and they also must be able to give effective decisions. The skills of decision-making and problem-solving are not only the results of development and socialization but also inevitable processes that go on throughout the life of an individual. Problem-solving skills that contribute to productive outcomes. Good decision-making requires a mixture of skills: creative development and identification of options, clarity of judgment, firmness of decision, and effective implementation. Here are some useful methods for effective decision-making and problem-solving: (1) problem identification, (2) goal



selection, (3) generation of alternative solutions, (4) consideration of consequences associated with alternative solutions, (5) approach to decision making, (6) implementation of solutions, and (7) evaluation of solutions [28]. Decision-making and problem-solving skills groups consist of a number of facets: (a) identify and analyze problems, (b) take effective and appropriate section, (c) realize the effect of decisions, (d) creative and innovative solutions, (e) transfer knowledge from one situation to another, (f) engage in life-long learning, and (g) think abstractly about problems [23].

Teamwork Skills

Teams are composed of individuals who have several different characteristics. Teamwork is a cooperative process that allows ordinary people to achieve extraordinary results [29]. Teamwork is synonymous to working collaboratively in groups. When individuals working collaboratively in groups, they (1) have a shared collective identity, (2) have common goals, (3) are interdependent in terms of their assigned tasks or outcomes, (4) have distinctive roles within the team, and (5) are part of a larger organizational context that influences their work and that they, in turn, can influence [30]. Teamwork replies upon individuals working together in a cooperative environment to achieve common team goals through sharing knowledge and skills. The literature consistently highlights that one of the essential elements of a team is its focus toward a common goal and a clear purpose [31]. Successful teamwork relies upon synergism existing between all team members creating an environment where they are all willing to contribute and participate in order to promote and nurture a positive, effective team environment. Team members must be flexible enough to adapt to cooperative working environments where goals are achieved through collaboration and respect with another team member.

Teamwork involves building relationships and working with other people using a number of important skills and habits, such as: working cooperatively; contributing to groups with ideas, suggestions, and effort; a sense of responsibility; a healthy respect for different opinions; and ability to participate in group decision-making. Teamwork is a key requirement in most occupations and an essential part of workplace success. Employers are seeking to recruit individuals who pay due attention to relations with peers and superiors. Students and employers noted the ability to work with others effectively is an important work-readiness skill [23]. Business executives want to recruit employees who will add value to the workplace with a composite of soft skills and who will embrace teamwork [34]. Teamwork skills that contribute to productive working relationships and outcomes. Teamwork skills are a set of skills that individuals use to foster the success of groups or teams from diverse backgrounds [35]. Teamwork skills groups consist of a number of facets: (a) productive as a team member, (b) positive and encouraging attitude, (c) punctual and meets deadline, (d) maintains accountability to the team, (e) work with multiple approaches, (f) aware and sensitive to diversity, and (g) share ideas to multiple audiences [23].

V. CONCLUSION AND RECOMMENDATION

Most employers want employees who will be effective in today's changing economy. The employer's demand indicates that occupation-specific skills are no longer sufficient for graduates to meet the needs of today's labour markets. They prefer to hire graduates who can manage change and thrive on it, flexible and adaptable workers who are quick to learn. Increasingly, graduates' attributes are more important than the graduates 'degree subjects. The literature review shows that employability skills become a very important issue 21st century labour market. Communication skills, problem-solving and decision-making skills, and teamwork skills are the attributes of employability skills with highest importance level. In addition, graduates are also expected to have a number of personal attributes included: self-awareness, self-confidence, independence. emotional intelligence, flexibility adaptability, stress tolerance, creativity and initiative, willingness to learn, reflectiveness, lifelong learning, and professional behaviour.

This research recommends to conduct a documentation study of job advertisements in newspapers and online, and continue with a cross-institutional survey focusing on the identification of important employability skills needed for successful transition from completion of degrees to the competitive workplace with multiple perspectives, such as alumni, employer, faculty, and students.

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