



Graduate generic competences from the perspective of VNU employers

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Abstract

The COVID-19 pandemic has accelerated a shift to new ways of working, prompting companies to reimagine how, where and by whom work gets done (World Economic Forum & Watson, 2020). This shift was already under way with the technological changes of the Fourth Industrial Revolution. Employers are looking for workers who are able to learn new knowledge and skills, adapt to the workplace, be sufficiently flexible to move jobs, and expand on the knowledge learnt at university. Applying the theory of generic competences and the model of thirteen generic competences for university graduates of the Tuning Asia - South East project (TASE), this research investigates the perspectives of VNU stakeholders about the generic competences of VNU graduates. In particular, this paper discusses the employers' perspective of VNU graduates' generic competences. Although employers rate all generic competences as important, they evaluated graduates' achievement of seven generic competences as being at a less than satisfactory level. The findings of the research point to the need for the university to focus more on developing generic competences throughout the delivery of programs.

Keywords
employer perspective, graduates, generic competences, Vietnam National University Hanoi (VNU)

Introduction

In the context of the significant development of information technology, artificial intelligence (AI) and industry 4.0, the emergence and rapid replacement of technologies is leading to the appearance of non-traditional types of careers. The COVID-19 pandemic has accelerated a shift to new ways of working, prompting companies to reimagine how, where and by whom work gets done (World Economic Forum & Watson, 2020). This shift was already under way with the technological changes of the Fourth Industrial Revolution. Employers are looking for workers who are able to learn new knowledge and skills, adapt to their workplace, be sufficiently flexible to move jobs, and expand on the knowledge learnt at university (Yorke & Harvey, 2005). 'New-generation manufacturing' depends not only on new information technology, but also on new kinds of expertise. Therefore, knowledge creation has expanded from the university to the field of application (Tynjälä et al., 2006).

Universities have been under considerable pressure to clarify the nature of the education they offer to their students.

Traditionally universities have been recognised as providers of basic scientific knowledge for local agricultural and manufacturing sectors and through their research and related activities, to produce, perpetuate and to disseminate knowledge (Gunasekara, 2006). In responding to the current changes in society, institutions of higher education now need to *encourage the synthesis and integration of different types of knowledge and to enhance the application of knowledge to social change* (Stephens et al., 2008, p. 320). The world we live in is 'super complex' where not only knowledge is uncertain, but also how we seek to understand such complexity. Therefore, the role of higher education is to help students and the wider society to cope with that complexity (Barnett, 2000).

Employers' perceptions play a key role in the definition of the required skills for graduates (Suleman, 2016). They look for graduates who are proactive, can use higher level skills including *analysis, critique, synthesis and multi layered communication to facilitate innovative teamwork in catalyzing the transformation of their organisation* (Lowden, Hall, Elliot, & Lewin, 2011, p. 4). They are also looking for interpersonal skills, intellect, problem solving, analytic skills, willingness to learn and continue learning, flexibility and adaptability and risk-taking. Companies require workers with flexible skills, trainability, persuasive skills and teamwork skills (Maclean & Ordonez, 2007). They look for graduates who are able to work in teams and relate with co-workers, clients, and collaborators (Crosling & Ward, 2002; Suleman, 2016), skills that, in many cases, prove to be more important than their technical knowledge (Hernández-March, Peso, & Leguey, 2009). These skills, the so-called 'soft skills', complement disciplinary knowledge (Suleman, 2016, 2018). The skills individual graduates develop are both constrained and enabled by work circumstances (Bennett, Dunne, & Carré, 2000).

Contemporary Vietnam is experiencing such rapid economic growth that the graduates of university training programs do not have the skills to meet the requirements of the labour market and do not connect well with employers and students (World Bank, 2013; Bodewig & Badiani-Magnusson, 2014). This is especially concerning at a time when measures adopted to confront the COVID-19 pandemic in and across the world are affecting the country's economic performance (ILO, 2020). The low rate of satisfaction with the knowledge and skills taught at the universities by employers suggests there is a serious gap between the job market and the education provided in the institutions. This paper discusses the employers' perspective of the generic competences of graduates from Vietnam National University Hanoi (VNU). By understanding this gap it might be possible to find a way to make graduates more employable through improving their generic competences. This paper reports results from broader research on the perspectives of stakeholders on the general competences of graduates from VNU.

Literature review: Generic competences

Most employers are looking for graduates who are proactive, can use higher level skills which include analysis, critique, synthesis and multi layered communication to facilitate innovative teamwork in supporting the transformation of their organisation. Barrie (2006a) conceptualised these as the generic skills, knowledge and abilities of university graduates. These generic attributes are applicable in a range of contexts and are acquired as a result of completing any undergraduate degree (Barrie, 2006a). Barrie posits that these desirable attributes are often independent of the degree discipline but allow graduates to acquire necessary skills, to satisfy the requirements of the new workplace, to transfer abstract cognitive skills, to work with others, to lead and to solve problems.

Many different terms have been used in the higher education literature to describe the generic skills of graduates and these commonly include the following terms: graduate attributes, competencies,

qualities or outcomes; generic attributes; transferable, employability or soft skills; and core capabilities (Barrie, 2006a, 2006b). Graduate attributes are conceptualised as the qualities, skills and understandings a university community agrees its students should develop during their time with the institution (Barrie, 2006a). These attributes include but go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents of social good in an unknown future (Bowden et al., 2000, cited in Barrie, 2006b, p. 217).

Generic competences are understood to be those which *identify shared attributes which could be general to any degree, such as the capacity to learn, decision making capacity, project design and management skills, etc. which are common to all or most of the degrees* (González & Wanegaar, 2003, p. 27). In the same vein, Hager, Holland and Beckett (2002) define 'generic skills' as a range of qualities and capacities that are increasingly viewed as important in higher education. These include thinking skills such as logical and analytical reasoning, problem solving and, intellectual curiosity; effective communication skills, teamwork skills, and capacities to identify, access and manage knowledge and information; personal attributes such as imagination, creativity and intellectual rigour; and values such as ethical practice, persistence, integrity and tolerance (Hager et al., 2002, p. 3). Amilburu and Ruiz-Corbella (2011) confirm that generic competences include adaptive and competitive abilities and the capacity for lifelong learning that people need to master to become active members of a flexible professional world.

A common conceptualisation by the European Parliament and European Council defines graduate competence as *'the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development'* (2008, C111/01). Competences are developed in all course units and assessed at different stages of a programme. In general, competence is the synthesis of knowledge, capacities, attitudes and personal traits involved in effectively carrying out a given activity (Amilburu & Ruiz-Corbella, 2011). Some competences are subject-area related (specific to a field of study), others are generic (common to any degree course) (ECTS Users' Guide, 2015).

Amilburu and Ruiz-Corbella (2011) posit that it is not easy to define the concept of 'competence'. Even for a single competence, for example, critical thinking, there exist many definitions, mostly about the ability related to assessing, judging, or evaluating a given problem or topic, as well as evaluating your own reasoning (DeWaelsche, 2015; Siegal, 2010). Elder and Paul (2010) identified critical thinking as *the process of analysing and assessing thinking with a view to improving it* (p. 38). There seems to be a basic consensus about the four main features that delineate it: complex notion, active-orientation, work-context oriented, and knowledge of what to do (Elder & Paul, 2010).

The term 'competences' are often used interchangeably with 'generic skills', 'generic graduate attributes', 'skills', and, to some degree overlap in meaning (Beneitone & Bartolomé, 2014, p. 304; Fallows & Steven, 2000; Hager & Holland, 2007). They all relate to the person and to what he/she is able to achieve, but also have more specific meanings (Beneitone & Bartolomé, 2014). Among these terms, 'skill' is probably the most frequently used term, with the meaning of being able, capable or skilful. 'Transferable skills' and 'generic competencies' may be considered as having the same meaning.

However, there was no single definitive set of generic competences derived at the time Young and Chapman (2010) conducted a historical overview of the generic competency frameworks. These authors generated a list of 58 competences through their literature review, and grouped them into six clusters: Basic Skills, Conceptual Skills, Personal skills, People skills, Business Skills, and Others. Researchers argue that generic competences are the skills and attributes beyond disciplinary content knowledge (Barrie, 2006b, Yorke & Harvey, 2005), which are applicable in a range of contexts and are acquired as a result of completing any undergraduate degree (Barrie, 2006b). Jones

posits that *the idea of generic skills is founded upon an assumption that it is possible to learn a skill in one discipline and then transfer it to another, or to quite different forms of work* (2006, p.6)

Hager et al. (2002) define 'generic skills' as a range of qualities and capacities that are increasingly viewed as important in higher education. These include thinking skills such as logical and analytical reasoning, problem solving and, intellectual curiosity; effective communication skills, teamwork skills, and capacities to identify, access and manage knowledge and information; personal attributes such as imagination, creativity and intellectual rigour; and values such as ethical practice, persistence, integrity and tolerance (Hager et al., 2002, p. 3).

Hager et al. (2002) argue that generic competences are distinguished from the discipline-specific knowledge and associated technical skills that traditionally are associated with higher education. While some of the 'skills' have significant physical components, e.g. body language in interpersonal communication, others are mainly intellectual. Still others are, strictly speaking, not so much skills as attitudes and dispositions (Hager et al., 2002, p. 3; Hager & Holland, 2007, p. 3). In the view of Hager and Holland (2007, p. 7), the development of generic attributes by learners and teaching and learning methods are closely linked because they have features such as:

- adult learning principles;
- holistic approaches to learning;
- problem-based learning;
- lifelong learning skills;
- learning how, why and exploring what if ..., not just learning received facts;
- learner reflection, evaluation and articulation on learning experiences as a critical aspect of the learning process;
- active, learner-centred approaches in which integrated thinking and action occurs on tasks that are relevant and meaningful to learners; and
- the teacher assuming multiple roles, such as mentor, coach, facilitator, evaluator, that include demonstrating/modelling the generic attributes to the learners.

Barrie (2006a) distinguishes generic attributes that include personal attributes, cognitive abilities and skills in application, from knowledge of a discipline and categorises these skills and abilities into the five key clusters: research and inquiry; information literacy; personal and intellectual autonomy; ethical, social and professional understanding; and communication (p. 159). Barrie (2006b) also argues that generic attributes, which are the learning outcomes that graduates possess, enable graduates to make use of, or apply disciplinary knowledge, potentially changing and transforming knowledge through its application. In Barrie's (2006a) framework, the two most complex conceptions of generic attributes include the 'enabling' and 'translation' conceptions. Barrie contends that three important learning outcomes of university education, such as scholarship, global citizenship and lifelong learning, are generic attributes analogous to the 'enabling' conception. These include interwoven skills, abilities and attributes at the heart of disciplinary knowledge and human capability. Scholarship is an attitude or stance towards knowledge. Meanwhile, Global citizenship is an attitude or stance towards the world and lifelong learning is an attitude or stance of students towards themselves. Included on the translation level are clusters of linked personal attributes, cognitive abilities and skills in application which are the learning outcomes that graduates possess, together with knowledge of a discipline.

Transferable skills include personal skills such as the ability to work well with others (Bennett, 2002; Fallows & Steven, 2000; Haigh & Kilmartin, 1999; Gimenez, 2012), the ability to organise (Bennett, 2002; Gimenez, 2012), self-motivation (Bennett, 2002), a basic capability to use information

technology (Bennett, 2002; Fallows & Steven, 2000), communication skills, initiative, creativity and the capacity to solve problems (Bennett, 2002; Fallows & Steven, 2000; Gimenez, 2012), leadership (Bennett, 2002), and learning skills (Stephenson, 1998). Gimenez (2012) categorised transferable skills into four groups: intellectual skills (e.g. being critical, using evidence, argument and analysis, problem solving), communication skills (e.g. oral, written and non-verbal communication), interpersonal skills (e.g. teamwork and leadership), and organisational skills (e.g. time management). Capable people have confidence in their ability to take effective, appropriate action, explain what they are seeking to achieve, live and work effectively with others, and continue to learn from their experience, both as individuals and in association with others, in a diverse and changing society (Stephenson, 1998).

Young and Chapman's (2010) six-clusters-classification is similar to Barrie's (2006a) four-level framework. Many of Young and Chapman's 58 generic competences are similar to 36 generic competences of the study on higher education and graduate employment in Europe (Schornburg & Teichler, 2007), led by the Universität Gesamthochschule Kassel in Germany. Schornburg and Teichler (2007) conducted the study from 1998-2000 in nine countries in the European Union, Norway, Czech Republic, and Japan to assess graduate competences. The research team developed 36 competences out of the body of literature on the subject and generated a questionnaire for graduates to evaluate work requirements and their achievements at graduation. Over 40,000 graduates from institutions of higher education responded. The survey results indicated that graduates believed that requirements on the job demanded more of them than were afforded by the competences acquired before graduation. A comparison of the perceived individual job requirements and acquired competences shows that graduates considered themselves fully qualified or even overqualified in the following five competences:

- field-specific theoretical knowledge,
- broad general knowledge,
- foreign language proficiency,
- learning abilities, and
- manual skills.

In an effort to renew the higher education system in Europe, the Tuning Project of the Tuning Academy at Duesto University in Spain looks at the concept of competences as capacities of a dynamic combination of attributes that permit a competent performance or as a part of a final product of an educational process. In the Tuning Project, competences and skills are understood as including knowing and understanding (theoretical knowledge of an academic field, the capacity to know and understand), knowing how to act (practical and operational application of knowledge to certain situations), and knowing how to be (values as an integral element of the way of perceiving and living with others and in a social context).

Under the grant of the European Council, the Tuning Academy conducted a series of research projects to identify competences that the workplace requires from employees which were then classified into three main groups: (i) instrumental competences or competences that function as a means to an end and require a combination of manual skills and cognitive capacities needed for professional competence; (ii) interpersonal competences include personal and relational abilities, which refer to capacity, ability or skill in expressing one's feelings and emotions in the most appropriate way and accepting the feelings of others, making it possible to work together toward common objectives; and (iii) systematic competences which involve skills and abilities related to an entire system, requiring a combination of imagination, sensibility and ability, and enabling one to see how the parts of a whole are conjoined and related (Sánchez & Ruiz, 2008). Based on the agreed competences they developed meta profiles for university programs. The Tuning Project's model of

competences was tested in five degree courses organised according to the European Credit Transfer system. It was then expanded to other universities in four regions. The list of 16 global generic competences found in common in the four regions in Tuning projects, included: problem solving, creativity, oral and written communication, interpersonal skills, critical and self-critical abilities, capacity to learn actively, information management skills, commitment to the consideration of the environment, capacity for abstract thinking, analysis and synthesis, decision making, concern for quality, ethical commitment, teamwork, ability to work autonomously, computing skills, and the ability to apply knowledge in practice.

These global generic competences were then organized around factors that respond to regional logic (Beneitone & Bartolomé, 2014). The Tuning project in South East Asia supported universities of 10 ASEAN countries (including three Vietnamese universities) and the ASEAN University network (AUN) to develop generic and specific competences for Programs in Medicine, Education, and Civil Engineering. The Tuning Project for the South East Asia region consulted academics and managers of universities in South East Asia and some universities in Europe to develop thirteen generic competences for university graduates in the region and specific competences for each of three programs: Civil Engineering, Teacher Training, and Medicine. Participants came to a consensus on the 13 generic competences for the region, which are consistent with the 16 global competences (Tuning, 2017a, 2017b).

The thirteen generic competences of Tuning Asia - South East Project (TASE) are:

- GC1. Ability to work collaboratively and effectively in diverse contexts.
- GC2. Ability to use information and communication technology purposefully and responsibly.
- GC3. Ability to uphold professional, moral and ethical values.
- GC4. Ability to demonstrate responsibility and accountability towards the society and environment.
- GC5. Ability to communicate clearly and effectively.
- GC6. Ability to think critically, reflectively and innovatively.
- GC7. Ability to understand, value, and respect diversity and multiculturalism.
- GC8. Ability to carry out lifelong learning and continuous professional development.
- GC9. Demonstrate problem solving abilities.
- GC10. Ability to initiate, plan, organise, implement and evaluate course of actions
- GC11. Ability to conduct research.
- GC12. Ability to demonstrate leadership attributes.
- GC13. Ability to apply knowledge into practice.

These generic competences can be seen in the list of skills that students need for the 21st century (World Economic Forum, 2015), including: foundational literacies (literacy, numeracy, scientific literacy, ICT literacy, financial literacy, cultural and civic literacy), competences - how students approach complex challenges (critical thinking, problem-solving, creativity, communication, collaboration), and character qualities (curiosity, initiative, persistence/grit, adaptability, leadership, social and cultural awareness).

In Vietnam, the economic shock from the direct and indirect impact of COVID-19 was visible in Vietnam's economic performance at the end of the first quarter of 2020 (ILO, 2020). Factories across key manufacturing sectors in the countries that are Vietnam's principal import and export partners have stalled their production. Specific sectors especially hit by the collapse in economic activity include wholesale and retail trade, transport, storage and communication, accommodation and food services, tourism, and several segments of the manufacturing sector (ILO, 2020). Applying two scenarios, the ILO estimates that by the end of the second quarter of 2020 the crisis could affect the livelihood of 4.6 to 10.3 million workers, whether through a decline in working hours and wages, or

ultimately, job losses. There is a strong need to educate students for a new complex future and prepare them for *the uncertain, the unknown, the unforeseen*, rather than for what is already known based on the knowledge gathered over the years (Barbato, Moscati & Turri, 2019, p. 98; Nowotny, 2016).

The research method

Though VNU was not involved in TASE, it is a member of the ASEAN University network, thus enabling the benchmarking of VNU graduates' achievement of the general competences to those of TASE project. This research drew on theories of graduate employability and transferable skills, and in particular from the TASE project's 13 graduate competences model (TASE, 2017a, 2017b), to explore the evaluations of the various stakeholders of VNU, of the degree to which VNU graduates have acquired general competences.

The questionnaire

Applying the methodology of the Tuning Project (TASE) (2017a), this research used the 13 generic competences of the TASE project to develop the questionnaire. The questionnaire measured three categories, including perceived 'importance', 'achievement', and 'priority' of the generic competences, using four variables 'None', 'Weak', 'Considerable' and 'Strong'. The questionnaire also included some questions related to the demographic profile of the participants, including: name (optional), age, gender, education, occupation, position (if any), telephone and email address. The questionnaire also asked for general information about the organisation: name, address, telephone, email address; type of organisation: government, enterprise, institution, non-governmental organisation, number of employees, and majors required at the organisation (see the questionnaire in the appendix).

The survey was conducted between February 2018 and March 2019. 818 participants agreed to participate, including 152 alumni, 189 recent graduates in 2018 and about to graduate, 51 lecturers, rectors and deans, 258 current students and 168 employers of graduates of VNU. They were graduates from seven VNU members: VNU University of Science, VNU University of Social Sciences and Humanities, VNU University of Languages and International Studies, VNU University of Engineering and Technology, VNU University of Education, and the VNU School of Law.

The employers of VNU graduates and stakeholders were approached mainly through the contact person at the Quality Assurance unit of the VNU member university or school. Each member university established and maintained contacts with employers of its graduates. They set up regular meetings with employers to discuss their professional requirements of the course, seek employers' comments on the curriculum, expected learning outcomes, and opportunities to have student placements at their organisations. The researchers were granted permission to attend the meetings/workshop/seminars to explain the purpose of the research project, to meet the participants and to seek their consent to participate. The questionnaire took approximately 15 minutes to complete. Participants were asked to evaluate the importance of general competences for graduates and their judgement on graduates' achievement of the general competences. A Likert scale of 4 levels including 1 = none, 2 = weak, 3 = considerable, 4 = strong (similar to the TASE Likert scale) was used to measure each variable (TASE, 2017a, p. 29). They were also asked to rank the five most prioritised generic competences from highest priority (1) to lowest priority (5).

The information collected was entered into an excel file and analysed using SPSS software version 16.0. The data analysis was conducted under the technical support of the research team of the Tuning Academy at the University of Deusto, Spain. The employers' evaluation of the importance of the competences, and employers' judgment on graduates' achievement of the competences were computed using one way ANOVA analysis.

Findings

The participants

Table 1: Participants

Group	Total participants	Sex		Missing value	Total valid
		Male	Female		
Employer	168	76	77	15	153
Alumni	152	30	121	1	151
Recent graduates and students about to graduate	189	37	144	8	181
Lecturers, Rectors, Deans	51	32	19	0	51
Current students	258	25	199	34	224
Total	818	818	560	58	760

From February 2018 to March 2019, 818 participants agreed to participate, including 168 employers of graduates of VNU. All employers agreed that VNU bachelor programs are necessary. Among the employers, 49.7% were male and 50.3% female. Their ages ranged from 22 to 64 years old, with 70% in the 30-40 age group. Their work positions varied with 53% holding different management roles.

Table 2: Number of Employees in the Organisation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<30	31	18.5	21.7	21.7
	30-100	48	28.6	33.6	55.2
	100-300	26	15.5	18.2	73.4
	>300	38	22.6	26.6	100.0
	Total	143	85.1	100.0	
Missing	99	4	2.4		
	System	21	12.5		
	Total	25	14.9		
Total		168	100.0		

27.5% of the organisations employed two to three VNU graduates, 29.4% employed between five and 10 VNU graduates, 21.4% employed more than 20 VNU graduates, while 78.3% of the organisations have more than 30 employees. Of particular note were two organisations: one which employed 70 VNU graduates, while the other employed 101 VNU graduates.

Employers of VNU graduates shared similar expectations with employers over the world. They wanted their new graduate employees to be competent in the generic competences soon after graduation. They ranked the group of five most prioritised generic competences of VNU graduates including:

- GC1 Ability to work collaboratively and effectively in diverse contexts
- GC3 Ability to uphold professional, moral and ethical values
- GC5 Ability to communicate clearly and effectively
- GC9 Demonstrate problem solving abilities
- GC13 Ability to apply knowledge into practice

Employers' evaluation of the importance of generic competencies

In the employers' evaluation of the importance of these 13 generic competences, the highest ranked were GC3 'Ability to uphold professional, moral and ethical values', GC13 'Ability to apply knowledge into practice', GC5 'Ability to communicate clearly and effectively', and GC9 'Demonstrate problem solving abilities' (see Table 3).

Table 3: Employers' Rating of the Importance of Generic Competences

Description	Employers' rating of the importance of generic competences		
	Mean	Median	Std. Deviation
GC3 Ability to uphold professional, moral and ethical values	3.69	4.00	.489
GC13 Ability to apply knowledge into practice	3.66	4.00	.536
GC5 Ability to communicate clearly and effectively	3.61	4.00	.538
GC9 Demonstrate problem solving abilities	3.60	4.00	.528
GC6 Ability to think critically, reflectively and innovatively	3.54	4.00	.537
GC2 Ability to use information and communication technology purposefully and responsibly	3.53	4.00	.537
GC8 Ability to carry out lifelong learning and continuous professional development	3.52	4.00	.571
GC1 Ability to work collaboratively and effectively in diverse contexts	3.46	3.00	.512
GC12 Ability to demonstrate leadership attributes	3.39	3.00	.593
GC4 Ability to demonstrate responsibility and accountability towards the society and environment	3.33	3.00	.642
GC10 Ability to initiate, plan, organise, implement and evaluate course of actions	3.31	3.00	.616
GC11 Ability to conduct research	3.19	3.00	.657
GC7 Ability to understand, value, and respect diversity and multiculturalism	3.19	3.00	.665

Likert scale of 4 levels including 1 = None, 2 = Weak, 3 = Considerable, 4 = Strong

The data in Table 3 shows that in the evaluation of the employers, the importance of all generic competences was rated better than considerable (all mean values range from 3.19 – 3.69).

However, employers rated graduates' achievement of GC7, GC5, GC4, GC12, GC11, GC6, GC10 generic competences lower than considerable (TASE, 2017a, p. 29) (mean values were lower than 3.00). The lowest was the achievement of GC10 'Ability to initiate, plan, organise, implement and evaluate course of actions' (mean value = 2.84).

Employers' Rating of VNU graduates' achievement of generic competences

Table 4: Employers' Rating of VNU Graduates' Achievement of Generic Competences

Description	Employers rating VNU graduates' achievement of generic competences		
	Mean	Median	Std. Deviation
GC3 Ability to uphold professional, moral and ethical values	3.27	3.00	.498
GC8 Ability to carry out lifelong learning and continuous professional development	3.10	3.00	.665
GC2 Ability to use information and communication technology purposefully and responsibly	3.07	3.00	.580
GC1 Ability to work collaboratively and effectively in diverse contexts	3.06	3.00	.542
GC13 Ability to apply knowledge into practice	3.01	3.00	.648
GC9 Demonstrate problem solving abilities	3.00	3.00	.592
GC7 Ability to understand, value, and respect diversity and multiculturalism	2.99	3.00	.574
GC5 Ability to communicate clearly and effectively	2.99	3.00	.598
GC4 Ability to demonstrate responsibility and accountability towards the society and environment	2.99	3.00	.629
GC12 Ability to demonstrate leadership attributes	2.95	3.00	.642
GC11 Ability to conduct research	2.91	3.00	.751
GC6 Ability to think critically, reflectively and innovatively	2.88	3.00	.750
GC10 Ability to initiate, plan, organise, implement and evaluate course of actions	2.84	3.00	.728

The best achievement of VNU graduates was on GC3 'Ability to uphold professional, moral and ethical values' (Mean = 3.27). The second to the highest was lifelong learning competence, GC8 'Ability to carry out lifelong learning and continuous professional development' (Mean = 3.10). Communication, problem solving, and critical thinking competences were judged to be at a lower achievement level as indicated by the means for GC5 'Ability to communicate clearly and effectively' (Mean = 2.99), GC9 'Demonstrate problem solving abilities' (Mean = 3.00), GC6 'Ability to think critically, reflectively and innovatively' (Mean = 2.88). The lowest achievement was for GC10 'Ability to initiate, plan, organise, implement and evaluate course of actions' (Mean = 2.84).

Discussion

Overall all generic competences are rated at high importance by the employers. Employers of VNU graduates give the highest priority to five generic competences including the ability to work collaboratively and effectively in diverse contexts; the ability to uphold professional, moral and ethical values; the ability to communicate clearly and effectively; the ability to demonstrate problem solving abilities, and the ability to apply knowledge into practice.

Graduates' achievement of general competences

However, employers rate graduates' achievement of more than half of these generic competences below a 'considerable' level. These include: GC7 'Ability to understand, value, and respect diversity and multiculturalism'; GC5 'Ability to communicate clearly and effectively'; GC4 'Ability to demonstrate responsibility and accountability towards the society and environment'; GC12 'Ability to demonstrate leadership attributes'; GC11 'Ability to conduct research'; GC6 'Ability to think critically, reflectively and innovatively'; and GC10 'Ability to initiate, plan, organise, implement and evaluate course of actions'. The lowest achievement was GC10. This is similar to the finding in Schomburg and Teichler's (2007) research that even four years after graduation graduates still seem to feel inadequate in most competences, including negotiating, planning and co-ordinating and organising.

Although employers of VNU graduates believe lifelong learning competence is good, they rate it low in graduate achievement. Lifelong learning competence is the most sought-after graduate competence when communication technology, internet of things (IOT), and Artificial Intelligence (AI) are having impacts across nearly all industries and shortening the shelf life of workers' skill sets (World Economic Forum, 2017).

Transferable competences

Generic attributes are transferable, transcending disciplinary boundaries, even though they are initially developed within disciplinary contexts (Barrie, 2006b). They provide the building blocks for knowledge in a discipline, but are more long-lasting and important than the disciplinary knowledge they support. Once developed, these graduate attributes are perceived to provide a reusable framework that enables students/graduates to acquire and shape new knowledge as required – even in the context of other disciplines (Barrie, 2006b).

When a person applies knowledge or skills acquired in one context in a new context, transfer of learning occurs. The ways graduates use their knowledge are influenced by the particular circumstances, from directly applying specific skills (near transfer) to strategically thinking about application of more abstract knowledge (far transfer) (Bennett et al., 2000, p. 16). Abilities that let graduates make use of, or apply, disciplinary knowledge, thus potentially changing and transforming disciplinary knowledge through its application include linked personal attributes, cognitive abilities and skills of application (Barrie, 2006b).

Teaching-learning for fostering transferable competences

To activate the transfer process, learning should take place in a social context, which fosters the generation of principles and explanations. Transfer improves when learning is delivered through co-operative methods, and the learners receive feedback on performance with training examples. Transfer is promoted if learners are shown how problems resemble each other, how to apply skills in different contexts, how to recognise the underlying goal structure of comparable problems, if examples are varied and are accompanied by rules or principles (especially if discovered by the

learners), and if learners' self-explanations are stimulated (Billing, 2007). This transferable characteristic of generic competences is necessary for graduates to navigate through the work market, as changes in employment patterns have allegedly increased the demand for graduates with 'an ability learnt in one context, which can be applied in another' (Gimenez, 2012, p. 403).

Jones (2006) argues that generic skills (or more accurately attributes) are part of disciplinary epistemologies. *The idea of generic skills is founded upon an assumption that it is possible to learn a skill in one discipline and then transfer it to another, or to quite different forms of work.* (p.6). Indeed, the development of the generic skills is inseparable from the discipline knowledge and skills (Jones, 2006). These generic competences are introduced and refined in a subject-related context. Disciplines are integral to the ways laboratories and clinics are organised and the ways teaching is organised through lectures, tutorials, seminars and practical classes (Jones, 2006). The disciplinary culture is present in and reproduced by curriculum content and structure, assessment practices, attitudes to teaching, the ways in which research is structured, individual departmental cultures and the professional persona (Jones 2006, pp. 222-223).

Discipline specific skills are necessary to perform at work which is specific to certain occupation or fields. Meanwhile generic skills are those necessary to performance at work which is transferable to multiple work situations, e.g. working with technology, written and verbal communication (Bridgstock, 2009). Although Bridgstock separates discipline specific skills from generic skills and adds other categories such as self-management skills, Career building skills, and Underpinning traits and dispositions, yet, in her analysis of these skills and traits, there exist an inter-linked between them, without a clear border.

Generic skills can be developed through the curriculum as an integrated part of the discipline teaching and learning activities, where the higher order generic skills such as analysis, problem solving and critical thinking are interconnected and interdependent. To be able to analyse means to think critically, and to solve problems (Jones, 2006). Critical thinking is developed through learning of principles and concepts that facilitates transfer to dissimilar problems, as it creates more flexible mental representations (Billing, 2007).

Training in reasoning and critical thinking is only effective for transfer, when abstract principles and rules are coupled with examples. High-order questions (analyse, evaluate, and create questions) develop students' critical thinking skills (DeWaelche, 2015) which *involves two distinct components: (a) skills or abilities of reason assessment and (b) the dispositions to engage in and be guided by such assessments* (Siegal, 2010, p. 141).

Engaging in research can foster critical thinking and communication skills for the students. To prepare and present at the conference, students are mindful of the communication skills needed to not only convey their key messages clearly to a diverse audience, but also to keep the audience interested and engaged. For critical thinking skills, students are acutely aware of the need to revisit their research, to think critically about its content, and to re-purpose it for a multi-disciplinary external context. For personal and intellectual autonomy, the students explicitly evidence self-regulation in their preparation for the university. They demonstrate a process of preparation, rehearsal, solicitation of feedback, and subsequent development of their poster and paper presentations (Hill & Walkington, 2016, p. 6). By fostering students' experiences as researchers, higher education can help students cope with the complexity in the work places (Barnett, 2000).

Teachers and university study can develop generic competences of students. Deardorff (2020) argues that if graduate attributes are acquired with the help of a teacher, there is an option for the teacher to embed the learning process within a broader of educational philosophy. To develop intercultural competences, for example, it is essential to start with individuals (Deardorff, 2020). Deardorff's approach of Story Circles for developing intercultural competences is an example of how the university can develop general competence. By talking circles or peacemaking circles people are

brought together into a situation of community where everyone is respected and is considered equal and where participants are able to share more about themselves. This sharing of personal experience validates not only the perspective of each individual but also generates new understandings and insights (Deardoff, 2020, p. 15).

Conclusion

The research reported in this paper contributes to the body of literature on graduate competences with significant findings of employers' perspectives on graduate generic competences and the need for improving graduates' employability through improved generic competences. The effective development of generic skills and attributes can only be obtained through the process of teaching and learning within disciplines. To study a discipline means to develop a form of social practice with particular forms of knowledge creation, verification and transmission which are integrated into laboratories and clinical instruction and teaching through lectures, tutorials, seminars and practical classes (Jones, 2006). That is students develop generic skills through their manner of study. Knowledge and cognitive processes are built not through deposits made by the teacher to the students, but by active student interaction (Freire, 2005). It is essential to unite disciplinary knowledge and skills with generic competencies that enable mindful application of subject-specific expertise in academic and societal contexts (Hill, Walkington, & France, 2016). The development of quality graduate attributes occurs through students developing personal graduate attributes in a self-directed and genuinely engaged manner (Su, 2014). The findings of the research point to the need for universities to focus more on developing generic competences throughout the delivery of programs.

A limitation of this study is that it approached only employers of VNU graduates and it might therefore not be possible to generalise the research findings to the demand of the labour market in general. Future research should involve employers of graduates from all universities to better understand needs of the world of work.

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