

Citizens for an unknown future: Developing generic skills and capabilities in the Gulf context

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Over the past 20 years or so, there has been a growing demand for Higher Education to more closely meet economic needs and employer requirements. HE in the UK and Australia, for example, has responded by identifying generic skills (UK) or generic graduate attributes (Australia) that are considered to improve students' learning, develop their employability skills and prepare them for life-long learning. The Bologna agreement has also identified skills that graduates will require as future European Union citizens. These skills have also been called 'key', 'core' or 'transferable' skills and are "the skills, knowledge and abilities of university graduates, beyond disciplinary content knowledge which are applicable in a range of contexts" (Barrie, 2007). This paper discusses our current understanding of generic skills in Higher Education, including the Gulf, and presents research findings from the literature and from a three-year study of incoming medical students conducted at the United Arab Emirates University.

INTRODUCTION

Traditionally, the emphasis in Higher Education has been on the acquisition of discipline knowledge and skills (vocational), with the development of more general intellectual and social skills and capabilities (transferable or generic) being a bonus (Bath et al., 2004). It can, however, be argued that while disciplinary knowledge and skills are transient, “skills” or capabilities such as teamwork, communication, problem-solving, analytical and critical thinking and leadership in fact represent the core capabilities of any graduate, irrespective of the field of study. In Australia, the Finn (1991) and the Mayer (1992) Committee Reports highlighted the importance of key competencies for employment in compulsory education and training. Interest in “key skills” gained momentum in the UK after the Dearing Report (National Commission of Inquiry into Higher Education, 1997) articulated the view that an outcome of tertiary studies should be the attainment of skills, attitudes and concepts relevant to employment. In 1999, the Bologna Agreement identified attributes required of graduates as future European citizens (European Ministers of Education, 1999). This extensive 1990s *skills agenda* debate culminated in a variety of terms describing graduate skills and capabilities: *core capabilities, key skills, transferable skills, graduate capabilities, even personal and professional capabilities*. In Australia, where these capabilities are referred to as *generic graduate attributes*, the Higher Education authority has encouraged universities to develop individual and distinct missions, with the expectation that the graduate attributes will reflect the specific mission of the graduating institution. This emphasis on graduate attributes is also linked to quality assurance and funding, as is evident in, for example, Wollongong University’s 1997-2005 Strategic Plan:

The attributes of a Wollongong graduate are the touchstone against which the university’s academic programs are compared and against which, ultimately, the university’s effectiveness can be measured. (James et al., 2004:5).

As a public measure of the quality of degree programmes, the Course Evaluation Questionnaire administered by the Australian Department of Education, Training and Youth Affairs includes questions about the teaching and learning of graduate attributes (Sharp & Sparrow, 2002).

DEFINITION OF GENERIC OR TRANSFERABLE SKILLS

According to the Higher Education Council of Australia (HEC, 1992), transferable attributes are “the skills, knowledge and abilities of university graduates beyond disciplinary content knowledge, which are applicable in a range of contexts and are acquired as a result of completing any undergraduate degree”. They should represent the core achievements

of a university education. Bowden et al. (2000) have described graduate capabilities as “the qualities, skills and understandings a university community agrees its students should develop during their time with the institution... These attributes include but go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses”. More importantly, they are “the qualities that prepare graduates as agents of social good in an unknown future” (Bowden et al., 2000). Several features define a generic graduate attribute or generic capability (Barrie, 2004):

1. They should be referred to as generic *attributes* rather than generic skills as they encompass more than skills and attitudes. ‘*Attribute*’ is a more global term that can accommodate new or alternative conceptions of knowledge and understanding.
2. The outcomes are *generic* in that the “skills” are developed regardless of the field of study or discipline knowledge. They are acquired through the various disciplinary contexts but transcend disciplinary outcomes.
3. They are abilities that should be present in a *university graduate from any undergraduate degree*. They are important outcomes of university learning.
4. These outcomes should result from the *usual process* of Higher Education. Importantly, they should not be a set of supplementary outcomes requiring an additional curriculum or programme.

EXAMPLES OF EXPLICIT GRADUATE CAPABILITIES ADVERTISED BY UNIVERSITIES

A search using terms such as “*generic graduate attributes*” or “*graduate capabilities*” yields many ‘hits’, largely university web pages, which is exactly where prospective students would look to find out what types of skills and attributes they might achieve by graduation. The University of Sydney’s (n.d.) website provides one of the more explicit documentations of graduate capabilities. “Three holistic overarching attributes” are identified as important outcomes of university education (see Figure 1):

Scholarship: “An attitude or stance towards knowledge: Graduates will possess a scholarly attitude to knowledge and understanding. As scholars, they will be leaders in generating new knowledge and understanding through inquiry, critique and synthesis. They will be able to apply their knowledge to solve problems and communicate their knowledge confidently and effectively.

Global citizenship: An attitude or stance towards the world: Graduates will be global citizens, who will aspire to contribute

to society in a full and meaningful way through their roles as members of local, national and global communities.

Life-long learning: An attitude or stance towards themselves: Graduates will be life-long learners committed to and capable of continuous learning and reflection for the purpose of furthering their understanding of the world and their place in it.

These 3 overarching capabilities are supported or underpinned by the development of skills and abilities in *five key clusters* (see Figure 1):

Research and inquiry: Graduates will create new knowledge and understanding through research and inquiry.

Information literacy: Graduates will be able to use information effectively in a range of contexts.

Personal and intellectual autonomy: Graduates will be able to work independently and sustainably, informed by openness, curiosity and a desire to meet new challenges.

Ethical, social and professional understanding: Graduates will hold personal values and beliefs consistent with their role as responsible members of local, national and international and professional communities.

Communication: Graduates will recognize and value communication as a tool for negotiating and creating new understanding, interacting with others and furthering their own learning.



Figure 1: Model depicting the University of Sydney's generic graduate attributes.

Monash University (n.d.) is another example where graduate attributes are explicitly advertised. The University uses Sir John Monash's words (1923) to frame its vision of its graduates:

“Adopt as your fundamental creed that you will equip yourself for life, not solely for your own benefit but for the benefit of the whole community.”

Within two overarching attributes (i.e. *responsible and effective global citizens* and *critical and creative scholars*), the Monash website describes attributes and qualities such as ethical values, cross-cultural competence, social justice and skills such as technical and numeracy, leadership, communication and critical analysis. Through the Monash Passport, learners are provided with many opportunities (e.g. research, student administration, community involvement) to develop these attributes.

IMPORTANCE OF GENERIC SKILLS/ATTRIBUTES

Bowden et al. (2000) have provided three principal arguments why a university should adopt a statement of generic capabilities and ensure the development of these attributes in the courses and programmes it offers. In the first instance, in line with a long-standing view that part of a university's role is to provide citizens who can function as *agents of social good and reform* in the community, graduates require more than disciplinary knowledge and skills. The second argument advocates that universities need to prepare their graduates for the largely *unknown realm of future professional practice*. Knowledge therefore needs to be learnt in a way and with a purpose that develops in learners the ability to adapt to unfamiliar situations and unpredictability of future practice. The third argument relates to the *employability* of graduates. Disciplinary expertise is but one of a large set of abilities and skills that determine whether an individual will succeed in his/her profession.

The key role of Higher Education in ensuring quality graduates for a global economy is evidenced in a 2008 UK Council for Industry and Higher Education (CIHE) document entitled “*Graduate Employability: What do employers think and want?*”. In the very first paragraph in the Foreword, Richard Davison states that

The CIHE series of reports on international competitiveness have all stressed that our [UK] economic future rests on innovation and delivering high value-added goods and services. Universities lie at the heart of our knowledge intensive future through their development of knowledge, graduates, senior management talent and through helping to develop the workforce. Graduates will play a vital role in creating wealth and underpinning the UK's international competitiveness. (Archer & Davison, 2008:5)

In a similar “employability” vein, Bowden et al. (2000) argue that universities have a *social responsibility to learners*. A university education should equip graduates to succeed in professional employment, assist them to make career changes and strengthen their potential for a more personally fulfilling life. In those authors’ opinion, a university which fosters the development of these generic capabilities sends students a message that it values them and supports their post-graduation success. Providing learners with a range of opportunities to develop these skills and allowing students to monitor their own developmental progress, is further evidence of a university’s recognition of individual worth (Bowden et al., 2000).

GRADUATE ATTRIBUTES: EMPLOYERS

As industry and business recruit a large proportion of graduates each year (i.e. stakeholders in the products of tertiary education), heed should be taken of desirable graduate ‘employability’ skills and attributes. The recent 2008 CIHE report on graduate employability has, however, highlighted a mismatch between employers’ ‘wish list’ and their satisfaction with the quality of graduates (Table 1). While ‘soft’ skills such as communication and team-working (i.e. social skills) and personality type were the most keenly sought after capabilities, employers were generally not satisfied with their level of development in graduates they interviewed or employed. The most important ‘hard’ skills’ such as numeracy, literacy and IT skills, which universities are traditionally better at developing, were well down employers’ list of important capabilities (Table 2). A similar picture of the value of soft skills has emerged in Australia. Capabilities such as establishing positive working relationships, managing workload efficiently and effectively, self-management, recognising and responding to the physical and psychological needs of oneself in the workplace topped the list. ‘Hard’ skills on the top 10 list for social science, for example, were information-handling and presentation skills (Bowden et al., 2000; <http://www.clt.uts.edu.au/QUT.social.science.html>; c.f. Goodliffe, 2005 on ‘soft’ skills for Engineering students).

Table 1: Top 10 most important skills and capabilities when recruiting new graduates: employers’ views (adapted from Archer & Davison, 2008).

Skill/attribute/quality	Rank (% employers identifying importance)	Employer satisfaction rank	Satisfaction gap
Communication skills	1 (86)	16	-15
Team-working skills	2 (85)	7	-5
Integrity	3 (83)	9	-6
Intellectual ability	4 (81)	5	-1
Confidence	5 (80)	13	-8
Character/personality	6 (75)	6	0
Planning and organizational skills	7 (74)	17	-10
Literacy (good writing skills)	8 (71)	23	-15
Numeracy (good with numbers)	9 (68)	?	?
Analysis and decision-making skills	10 (67)	26	-16

Table 2: Other skills/ attributes (adapted from Archer & Davison, 2008).

Skill/attribute/quality	Rank	Employer satisfaction rank
IT skills	14	1
A post-graduate qualification	33	2
Good degree classification	15	3
Qualification from an institution with a good reputation	26	4
Relevant course of study	20	8
Cultural fit with company	19	10

The importance employers assign to social and personal abilities or attributes was corroborated when graduates were canvassed about what led to effective learning in three contexts: university, work placement and employment (Crebert et al., 2004). The most important factors identified in all contexts were the value of teamwork, being given responsibility and collaborative learning. Graduates also identified that working collaboratively with colleagues was the preferred way of developing their ability in terms of problem-solving, analysis, teamwork, leadership, assuming responsibility and making decisions and developing high ethical standards. In addition, graduates identified that the traditionally competitive culture of the university environment does not always provide sufficient opportunity for collaborative learning and teamwork. In the workplace, however, individual work is rare, with team projects being the norm (Crebert et al., 2004). In Rogers and Mentkowski’s (2004) study which followed up the professional success of five-year alumni, faculty were of the opinion that effective graduate performance was broadly grounded in their College’s framework used for constructing action, flexible use of disciplinary knowledge, collaboration and developing the capacity for self-assessment.

There is, however, a need for students to be made aware of the importance of these abilities in terms of their future professional careers. This was highlighted by an employer of engineering graduates from one Australian university:

“Students, when they start their course, seem to be narrowly focused on their particular discipline. The need to be competent in generic skills seems to be harder for them to accept. There is a need for the University to make it very clear to students that for their future employability they need these generic skills. They are as important as the technology itself. Students need to have an image of themselves as professionals in the workplace. If they have that image, they can see why the skills are so important” (Crebert, 2002).

It was only when students or graduates find themselves in work experience during placement or in employment that they recognised the further development of these skills, including the importance of acquiring the skills at university (Crebert et al., 2004).

While accounting students were becoming more aware of employer expectations in terms of communication, analytical, professional and teamwork skills, Kavanagh and Drennan (2008) reported that both students and employers were of the opinion that some non-technical and professional capabilities were not being developed sufficiently during university accounting programmes. It is not surprising therefore that some professional bodies have mandated which graduate attributes should be included in undergraduate courses. To this end, the Australian Institution of Engineers stipulates that universities must ensure that its engineering graduates are trained in communication skills, have the ability to identify, formulate and solve problems, are able to function effectively in various roles in multidisciplinary and multicultural teams, and have the capacity for life-long learning (Tempone & Martin, 2000).

WHY THE 'PATCHY' IMPLEMENTATION OF GRADUATE ATTRIBUTES?

Despite almost three decades of discussion and documentation, a conceptual fog has clouded the implementation of generic attributes into programmes and curricula. Reasons for this patchy implementation are varied. In the first instance, not only has there been little agreement about what “skills”, “outcomes”, “attributes”, “qualities” and “capabilities” are (including level), but differing conceptions about how these capabilities should be developed in learners have contributed to the lethargy. A university’s list may therefore include outcomes that range from simple technical skills (e.g. *should be able to use a computer*) to complex higher order abilities and ethical values (e.g. *demonstrate shared values, cultural awareness and tolerance for difference*) (Sharp & Sparrow, 2002; Barrie, 2006), as is reflected for “Communication skills” in Table 3.

Jones (2009a), from her qualitative study involving 37 academics representing a number of disciplines, documented the following barriers to graduate attribute implementation:

- *Epistemological*: Generic attributes are not considered as part of the discipline.
- *Cultural*: Generic attributes are not perceived as a central role of university.
- *Intrinsic*: Generic attributes are complex and difficult to define.
- *Pedagogical*: There is a lack of understanding regarding the nature of, experience with or confidence in teaching generic attributes.

- *Structural*: Reasons include large classes, lack of time, emphasis on research and the teaching of generic attributes not supported by the department.

Table 3: Examples of the variation in descriptions for Communication as a capability (adapted from Sharp & Sparrow, 2002).

Institution	Attribute	Description
University A	Communication	Communicates effectively in professional practice and as a member of the community
University B	Communication	Effective written and oral communication skills
College C	Interpersonal & public communication	Students should develop the abilities to reflect upon and integrate their personal, professional and academic experiences in ways that allow them to work and live effectively in different contexts and environments
University D	Communication skills	<ul style="list-style-type: none"> • Use clear, appropriate and accurate written, oral and aural styles • Make use of standard IT tools to enhance communication • Use numerical data effectively to enhance communication • Use visual and media styles to enhance communications • Communicate in one or more languages other than the mother tongue

Barrie (2004, 2006, 2007) ascribes the slow implementation of generic capabilities partly to the conceptually different ways in which academics perceive the teaching and learning of these attributes. Barrie’s (2003) phenomenographic doctoral study involving 15 academics from a number of disciplines was a seminal research project. The conceptual framework developed has influenced the generic graduate attribute deliberations in Australia and has certainly informed the University of Sydney’s policy. One must bear in mind that at the time of Barrie’s (2003) research, most Australian universities were already advertising these graduate outcomes, but with little or no quality assurance process to ensure implementation. A synthesis of Barrie’s research, taken from Barrie (2007), can be found in Appendix 1, which shows the “what” (outcomes) and the “how” (process) of academics’ perspectives on generic skills. The “what” is depicted as four qualitatively distinct conceptions of generic attributes (i.e. *precursory, complementary, translation and enabling*), while the “how” pertains to the processes involved in developing these skills. Six processes involving teaching vs. learning were identified: *remediation, separate courses, in the context of discipline content, in the process of how the discipline content is taught, engagement in the*

course and through the experiences of participating in university life. As the diagram shows, there was some relation between these two dimensions, with individual academics (indicated by numbers 1-15) tending to position themselves more towards a Precursor-Remedial view of these skills, or towards an Enabling-Participatory view.

According to Jones (2009a,b), this patchy implementation may also be explained in terms of the tacit becoming explicit. In that author’s opinion, some generic skills and attributes were historically embedded within the realm of tacit knowledge of a discipline and so were already being developed within the disciplinary context. Administrators and educators now require them to be explicitly advertised and mapped. While some (e.g. Leggett et al., 2004) are of the opinion that generic capabilities need to be made explicit and actively identified and developed, Jones (2009a,b) sees this as part of the problem: asking teachers to now check a list of attributes and skills that were previously embedded in the discipline content and practice. For Jones (2009a,b), de-disciplining and decontextualising graduate attributes has created barriers for implementation. That author has identified a gap between some academics’ ideal notions of generic attributes and their being included in teaching practice (i.e. espoused vs. practiced). Her qualitative study found that while attributes such as critical thinking, problem-solving and communication may be highly valued by teachers, what is actually taught depends on individual academic’s interpretations of generic attributes, reducing complex capabilities to learning objectives that can be defined, as well as taking into account practical constraints such as large classes and an institution’s research agenda (Jones, 2009a). As educators and educational administrators, we have definitely not all been singing from the same hymn sheet in terms of graduate attributes!

DEVELOPING GENERIC GRADUATE ATTRIBUTES

For Bowden et al. (2000), achieving a desired capability is a developmental and sequential process, requiring time and with opportunities to demonstrate the capability with increasing consistency, complexity and sophistication (i.e. from developing, through application to professional use). Fostering the development of capabilities within a university course therefore requires *curriculum decisions*, as well as *teaching and learning strategies* that highlight variation in experience and reflection on the potential the experience affords to handling new situations, and *assessment strategies* that involve more than technical competence. Those authors identified a number of key principles or critical elements if generic attributes are to be successfully incorporated in the curriculum:

1. Development of generic capabilities has little meaning unless embedded within the *context of the discipline*. These attributes will then be contextualised differently within the various disciplines

(Table 4) (Scoufis, 2000; Bath et al., 2004; Jones, 2009a,b).

2. *Specific provision in the curriculum* is required to ensure development of these capabilities. This generally involves curriculum planning and documentation indicating where and how they will be developed (i.e. at the level of administrators, curriculum designers)
3. A commitment to developing transferable graduate attributes requires important decisions in terms of *teaching and learning* (i.e. involving individual teachers)
4. *Assessment* of generic skills is complex and should take cognisance of factors such as the student’s role in the assessment, and perceptions of whether the capability contributes to employability.

Table 4: Core graduate attributes contextualised (Scoufis, 2000).

Attribute	Health and Nursing	Employment Relations & Work	Science
Oral communication	<ul style="list-style-type: none"> • Use appropriate professional language • Demonstrate caring therapeutic interpersonal skills and attributes 	<ul style="list-style-type: none"> • Demonstrate clear, confident verbal expression with appropriate language and style fit for purpose • Lead discussions 	<ul style="list-style-type: none"> • Speaking scientifically – communication with peers and others
Information literacy	<ul style="list-style-type: none"> • Evidence-based nursing • Defining the task and then assessing, evaluating and integrating relevant research into Nursing Practice 	<ul style="list-style-type: none"> • Accessing and utilizing research material including web and CD-based resources • Using primary and secondary research 	<ul style="list-style-type: none"> • Drawing upon text, index, web, library as information sources • Being able to cross-reference information sources

GENERIC GRADUATE ATTRIBUTES IN THE GULF REGION: THE *STATUS QUO*

In gathering information pertaining to the status of generic attributes in the Gulf region, two assumptions were made. The first was that since these are attributes expected of all university or college graduates, they would be *reflected in the outcomes* of university programmes. Secondly, they would be *explicitly advertised*, either on a website (mission statement or vision) or in a prospectus. With this in mind, the websites of a number of state universities in the region (Oman, UAE, Saudi Arabia, Kuwait, Qatar) were searched using words and phrases such as “*generic skills*”, “*generic attributes*”, and finally, “*prospectus*”. The search did not, however, yield significant information. Mission statements generally made reference to the objectives of the university, with occasional mention of graduate outcomes. Sultan Qaboos

University, for example, advertises University objectives in terms of *Higher Education, Research and Community Service*, in which there is some reference to graduate outcomes (e.g. preparation of creative and innovative Omani youth who are life-long learners).

From the website of King Abdulaziz University (Saudi Arabia), one can download a template on national programme specifications (National Commission for Academic Accreditation and Assessment, n.d.). This document stipulates that programmes need to be defined in several domains of learning outcomes (*knowledge/cognitive domain, cognitive skills, interpersonal skills and responsibility, communication, IT, numerical skills, psychomotor skills*) in terms of *description, teaching strategies and assessment*.

Using examples from the UAE, the website of United Arab Emirates University provides prospective applicants with little information on the sort of graduates they can expect to become. With some delving into individual college documents, courtesy of colleagues, there is some activity under way in terms of documentating and implementing standards and benchmarks. For example, the College of Humanities and Social Science has developed *employability/entrepreneur* benchmarks for its programmes (Johnson, *pers. comm.*). To this end, the College advertises that the holders of degrees will be able to demonstrate the following:

- *Communication skills* (expanded):
 - Read, understand and present information in a variety of forms, e.g. words, graphs, charts, diagrams.
 - Write effective reports/essays, setting issues in perspective, leading to clear personal findings or conclusions.
 - Make clear and effective oral presentations.
 - Use relevant methodologies and technical and statistical knowledge and skills to explain or clarify ideas.
 - Share information using a range of communications means and technologies, e.g. voice, e-mail, software.
- *Information management*
- *Numeracy*
- *Problem-solving, decision-making and creativity*
- *Team-work*
- *Project management*
- *Personal responsibility/motivation* (expanded):
 - Set goals and priorities balancing competing demands.
 - Accept responsibility and accountability for one's own performance and behaviour.
 - Recognise the need for continuous learning and professional growth.

- Implement the values of hard work, honesty and integrity.
- Demonstrate personal initiative.
- Demonstrate shared values, cultural awareness and tolerance for difference.
- Be socially responsible, taking into account the interests of others.
- Demonstrate career interests and goals, awareness of programme-related career possibilities.

For the Higher Colleges of Technology, graduate outcomes are advertised briefly in the Mission Statement available in the *2009-2010 Prospectus* (Higher Colleges of Technology, 2009). The prospectus states that

Graduates of the Colleges will have the

- linguistic ability to function effectively in an international environment,
- technical skills to operate in an increasingly complex technological world,
- intellectual capacity to adapt to constant change, and
- leadership potential to make the fullest possible contribution to the development of the community for the good of all its' people.

HCT graduates will also

have an unparalleled opportunity to prepare themselves for meaningful and successful lives as leaders in the UAE.The long standing reputation of our graduates among employers and within the UAE community as motivated, skilled and productive employees gives our alumni an enviable status in the country (HCT, 2009).

Perhaps the best example of explicit graduate capabilities is available from Zayed University (ZU). By subscribing to an Academic Program Model, ZU is committed to preparing educated leaders in their community, nation and world. Each ZU course focuses on one or more of the six University-specified learning outcomes (ZULOs) which are incorporated into normal coursework. As such, they are an integral part of the disciplinary content and assessment of the course (ZU, 2009).

ZULOs are considered as the cornerstones to the success of ZU graduates. ZU graduates should therefore be able to:

1. Communicate effectively in English and Modern Standard Arabic, using the academic and professional conventions of these languages appropriately (*Language*)

2. Use current information technology to enhance productivity and effectiveness (*Information technology*)
3. Use both critical and quantitative processes to solve problems and to develop informed decisions (*Critical thinking and quantitative reasoning*)
4. Find, evaluate and use appropriate information from multiple sources to respond to a variety of needs (*Information literacy*)
5. Understand and value their own and other cultures, perceiving and reacting to differences from an informed and socially responsible point of view (*Global awareness*)
6. Undertake leadership roles and responsibilities, interacting effectively with others to accomplish shared goals (*Leadership*)

Each college advertises its Major Learning Outcomes (MALOs) which generally reflect the ZULOs but which may be tailored for the course or profession (e.g. Table 5).

Table 5: Major Learning Outcomes of Zayed University’s College of Communication and Media Sciences, reflecting the University Learning Outcomes.

Zayed University Learning Outcomes (ZULO’s)	Communication and Media Sciences Learning outcomes (MALO’s)
Language	Language and Communication Competence
Information Technology	Technical Competence
Leadership	Leadership and Professionalism
Information Literacy	Information Literacy
Global Awareness	Global Awareness
Critical Thinking and Quantitative Reasoning	Critical Thinking and Reasoning

EMIRATISATION, GRADUATE ATTRIBUTES AND UAE HIGHER EDUCATION

The UAE Government recently set up the Federal Human Resources Authority and the Emirates Council for Emiratisation, plus several other initiatives to promote emiratisation in an effort to alleviate unemployment amongst the National population and to reduce the dependence on foreign labour. Currently, less than 1% of Emiratis are currently employed in the private

sector and 10% are unemployed, with the figure rising to 14% in Abu Dhabi (Al-Awadhi, 2010). There are around 3,000 National job-seekers, most of whom are graduates (Emirates News, 2010). According to Al-Awadhi (a member of the Federal National Council) and others (e.g. Randeree, 2009), tertiary institutions have an important role in skilling National students for their future roles as leaders in strategic industries. The education system is, however, falling short of graduating Emiratis with the skills needed to compete against global market candidates. Providing effective vocational training to reduce the skills gap is one of the strategies required to implement the emiratisation policy (Al-Awadhi, 2010). According to Al-Shaiba (2010), developing creative human resources for the UAE requires an education strategy that focuses on creativity, constructive scientific thinking and modern technology and methods. Their recommendations are to ascertain the local labour market requirements for the next 10 years and provide appropriate higher education programmes to prepare National undergraduates. This will, however, necessitate a strong relationship between industry, business and UAE public and private higher education institutions. Identifying a common set of generic graduate attributes and ensuring mechanisms are in place in terms of teaching and learning and workplace experience would certainly contribute to producing graduates who are better prepared for professional life.

GENERIC SKILLS RESEARCH: UAE

A three-year study of first year medical students at UAE University

A three-year project involving three cohorts (2006-2008) of incoming medical students was undertaken at UAEU’s Faculty of Medicine and Health Sciences (FMHS). Using a validated inventory (Whittle & Murdoch-Eaton, 2004), incoming first year medical students were asked to indicate (on a 4-point scale) their experience and confidence regarding 31 generic skills in six categories:

- *information-handling*
- *information technology*
- *technical and numeracy*
- *organizational*
- *managing learning*
- *presentation and communication skills.*

A score below 3 was considered as ‘inexperienced’ and ‘not confident’. A year later, the survey was repeated to assess skill development over the first year of a two-year Medical Sciences Course (MSC), which advertises skills development as course outcomes.

Incoming students were most practiced and most confident in their

organizational and IT skills, while they rated their experience and ability with technical and numeracy skills lowest, followed by their presentation and communication skills (Table 6). After a year, although this ranking did not change, advances were reported in their information-handling skills. However, opportunities to practice technical and numeracy skills, and hence their confidence, declined significantly.

Table 6: Ranking of categories of skills of students on entry and after one year of study. (Skills above the line represent scores >3 on a 4-point scale).

Entering (MSC1)		A year later (MSC2)	
Experience	Confidence	Experience	Confidence
1. Organizational	1. IT	1. Organizational	1. IT
2. IT	2. Organizational	2. IT	2. Organizational
3. Managing learning	3. Managing learning	3. Managing learning	3. Managing learning
		4. Information-handling	4. Information-handling
4. Information-handling	4. Information-handling	5. Communication	5. Communication
5. Communication	5. Communication	6. Technical/numeracy	6. Technical/numeracy
6. Technical/numeracy	6. Technical/numeracy		

Some survey results were not surprising. For example, the high ranking of computer literacy may be explained in terms of the UAEU's General Requirements foundation year, until recently compulsory for all medical students, which concentrates on Mathematics, English and Computer skills. In addition, UAE students are generally able to afford computers and other digital communication media. UAEU medical students' self-rated computer literacy was far superior to that described by Whittle & Murdoch-Eaton (2004) for the 2000-2001 students in the UK, where 15% of incoming medical students reported little experience with email, for example, with 8% never having used it. When asked about important transferable skills for medicine, the UK students rated IT skills the least important (Whittle & Murdoch-Eaton, 2001), much like Kathmandu medical students (Shankar et al., 2002). Almost a decade later, I wonder whether these UK and Nepalese students have the same perceptions, considering the advances in digital technology.

Incoming male students reported less practice and less confidence in many skills (Table 7, Table 8), which was the antithesis of the 2000-2001 cohort of UK students (Whittle & Murdoch-Eaton, 2001). In the present study, the self-reported lower level of skills experience and ability may explain, in part, the lower academic averages for male cohorts, suggesting that they may require additional support at the outset of their studies. This significant

gender difference was, however, reduced after the first year of studies (Table 8, Table 9).

Table 7: Ranking of categories of skills by male and female students on entry. (Skills above the line represent scores >3 on a 4-point scale).

Males: on entry		Females: on entry	
Experience	Confidence	Experience	Confidence
1. IT	1. IT	1. Organizational	1. IT
2. Organizational	2. Organizational	2. IT	2. Organizational
3. Managing learning		3. Managing learning	3. Managing learning
		4. Information-handling	
4. Information-handling	3. Managing learning	5. Communication	4. Information-handling
5. Communication	4. Information-handling	6. Technical/numeracy	5. Communication
6. Technical/numeracy	5. Communication		6. Technical numeracy
	6. Technical/numeracy		

Table 8: Total skills inventory score for first year medical students on entry and followed up a year later. (NS = not significant).

Students	Total inventory	
	Experience	Confidence
Year 1 cohort	3.13§ ± 0.32	2.96§ ± 0.38
Year 2 cohort	3.10§ ± 0.31	2.96§ ± 0.37
Year 1 males	3.00§ ± 0.38	2.86§ ± 0.41
Year 2 males	3.05§ ± 0.30	2.93§ ± 0.39
Year 1 females	3.18§ ± 0.28	3.00§ ± 0.36
Year 2 females	3.12§ ± 0.32	2.98§ ± 0.36
p: Y1:Y2	NS	NS
p: Y1M:Y2M	NS	NS
p: Y1F:Y2F	NS	NS
P: Y1M:Y1F	0.0009	0.03
Y2M:Y2F	NS	NS
§Experience vs. confidence	p < 0.000001-0.04	

Table 9: Ranking of categories of skills of medical students after the first year of studies. (Skills above the line represent scores >3 on a 4-point scale).

Males: after one year		Females: after one year	
<i>Experience</i>	<i>Confidence</i>	<i>Experience</i>	<i>Confidence</i>
1. IT	1. IT	1. Organizational	1. IT
2. Organizational	2. Organizational	2. IT	2. Organizational
3. Managing learning	3. Managing learning	3. Managing learning	3. Managing learning
4. Information-handling	3. Information-handling	4. Information-handling	4. Information-handling
5. Communication	5. Communication	5. Communication	5. Communication
6. Technical/numeracy	6. Technical/numeracy	6. Technical/numeracy	6. Technical/numeracy

This audit has provided useful information about the skills level of incoming students and what skills students perceive themselves as developing over the first academic year. Interestingly, their progress in information-handling and some presentation and communication skills (e.g. essays, oral presentations) was generally not directly related to disciplines, but rather to the activities planned in a Medical Communication and Study Skills course that runs in parallel with the biomedical disciplines (i.e. ‘bolt-on’ and not advocated). The data suggest that even after a year, students still lack confidence in their technical and numeracy skills. In fact, practice with and confidence in these skills declined, especially “calculations”, which should be of concern. Doctors are required, for example, to calculate drug doses and fluid volume replacements, and calculation errors could be life-threatening.

Research opportunities in generic attributes

Considerable research opportunities exist in the GCC countries in terms of research involving “ideal” or “employable” graduate attributes. We could start with some action research in which we can question our practice, for example, our espoused theory vs. our theory in practice, or identifying where we teach these skills and how best we can assess them. Other research, perhaps in conjunction with students, could canvas the private business sector about the skills required to be successful in the present context, or investigate whether discipline differences exist in the teaching and learning of graduate attributes.

CONCLUSIONS

Whether we like it or not, at some point, each university and college in the

UAE (and other Gulf countries) will probably need to define the capabilities of its graduates if Nationals are to be developed as leaders in the various professional sectors. Once policies are in place (and they probably will be shortly), the ultimate responsibility for ensuring that these skills and attributes are developed in learners lies with individual discipline teachers, who will have to demonstrate that students have achieved the advertised outcomes. It is rumoured that a national qualifications framework will be implemented in the next year (Baker, *pers. comm.*). Each institution would therefore be required to document programme outcomes within this framework. This would be an excellent vehicle for ensuring a compendium of agreed upon capabilities of graduates who will become tomorrow’s UAE leaders. Al-Mutawa (2010) has urged loyal UAE citizens to contribute to the development of the country’s future through effort and creativity, supported by a modern education system.

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Appendix 1: Australian academics' perspectives on generic skills (Barrie, 2007).

How?	What?	1. REMEDIAL Not usually part of university teaching	2. ASSOCIATED Generic attributes taught as a discrete subset of teaching in university courses	3. TEACHING CONTENT Generic attributes taught in context of teaching disciplinary knowledge	4. TEACHING PROCESS Generic attributes taught through the way course disciplinary knowledge is taught	5. ENGAGEMENT Generic attributes learnt through the way students engage with course learning experiences	6. PARTICIPATORY Generic attributes learnt by the way students participate and engage with all experiences of university life
A: PRECURSOR Necessary basic skills but irrelevant as they are a prerequisite for university entry	4 6	Supplementary	1 10 15 5 15	Integrated	Quadrant 2	Quadrant 4 (b)	
B: COMPLEMENT Useful skills that complement or round out disciplinary learning		I. Additive outcomes taught in a teacher-focused way; supplementary	1 10 15 5 15	Quadrant 1	Quadrant 2	Quadrant 4 (a)	
C: TRANSLATION Abilities that let students make use of or apply disciplinary knowledge in the world		Transformative	2 12	II. Transformative outcomes taught in a teacher-focused way; integrated	8 11	III. Transformative outcomes taught in a learner-focused way; integrated	3 9
D: ENABLING Abilities that infuse university learning and knowledge		Quadrant 3		Teaching focus	7	Learning focus	14