Challenges in the Integration of Soft Skills in Teaching Technical Courses: Lecturers' Perspectives

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ABSTRACT

In order to transform Malaysia into a fully developed nation, institutions of higher education need to play a vital role in generating the necessary human capital with a first-class mentality. The Ministry of Higher Education has taken some steps to ensure that soft skills be addressed in the curriculum because they are among the essential skills needed by graduates in order to be employable in this global era. The issue of unemployment among graduates is associated with the notion that graduates have not adequately acquired employability skills and soft skills during their studies at university. In Malaysia, many employers have often complained that most Malaysian graduates lack the necessary soft skills vital for work. This has aroused concern among many parties which has led to the development of the Framework on Incorporating Soft Skills in Teaching and Learning in Malaysian Higher Education Institutions. It is one of the efforts undertaken to enhance the employability of university graduates through the inculcation of soft skills in higher education. Malaysian universities have to produce students of certain attributes to make them relevant in the job market. Consequently, it is the job of the educators to assist the students to acquire the skills. For technically based occupations

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like engineering, soft skills are also very important for the application of technical knowledge at work. Engineering is one of the fields that is important for the development of the country. Thus, this study focuses on engineering students. This paper discusses the challenges faced by the lecturers at a private university in trying to integrate soft skills in their teaching of technical courses. Data derived from open ended questions and an interview was then analyzed according to three main themes which are students' attitude in the classroom, limited time to cover syllabus and large number of students in the classroom. Pedagogical implications of the findings are discussed.

Keywords*: higher education, soft skills, graduate, employment*

Introduction

Higher education is pressed to reconcile its traditional role with market requirements and the change brought about by globalization. Knowledge is no longer pursued for its own sake. In response to the pressure of these global trends and in its efforts to transform the higher education in Malaysia to a higher level, the Ministry of Higher Education (MOHE) came up with its strategic plan, the National Higher Education Strategic Plan in 2007. The plan can be used as a guideline for all stakeholders and as a reference framework for evaluating and improving action. The ultimate goal is to ensure that Malaysian universities are able to compete more effectively at an international level, and produce a skilled workforce to reinforce the nation's economic strength and competitiveness.

Institutions of higher education play a vital role in generating the necessary human capital with a first-class mentality needed to transform Malaysia into a fully developed nation (National Higher Education Action Plan 2007 – 2010). In this era of globalization, Malaysia will be faced with many new challenges such as economic instability and thus, Malaysians must be well equipped to face these challenges. The National Higher Education Strategic Plan articulates the Ministry's vision for the transformation of higher education in Malaysia from now to the year 2020 and beyond. As soft skills are among the essential skills needed by graduates in order to be employable in this global era, the ministry has also taken some steps to ensure that soft skills be addressed in the higher education curriculum. These are encapsulated in the Framework for Incorporating Soft Skills in Teaching and Learning in Malaysian Higher

Education Institutions in 2006 (Kementerian Pendidikan Tinggi, 2006). Hazadiah et al. (2008) reported that these skills could be introduced in "course objectives, learning outcomes and teaching strategies when conducting either core subjects and co-curriculum and extra-curriculum activities" (p. 296). The most recent development is the ministry's focus on Generic Student Attributes (GSA). According to the Minister of Higher Education, Dato' Seri Mohamed Khaled Nordin, GSA is established to ensure that all students at the Malaysian higher learning institutions will enrich themselves as complete and comprehensive students who possess added values such as communications skills, the ability to think critically and solve problems, leadership skills and team spirit and entrepreneurship skills (Mohamed Khaled, 2009). These efforts, he emphasizes, are designed to encourage both the academic and social development of graduates which could ensure that they are employable and successful in their lives.

Importance of Soft Skills

Soft skills are vital for all graduates to acquire, regardless of their field of study. These skills such as communication skills, analytical, critical and problem solving skills, lifelong learning ability, entrepreneurship and management skills are the ones that employers value as important skills for potential employees to possess. For instance, Madden (2007) stresses that good communication skills have never been more important for chartered accountants. He adds that while the technical skills of accountancy are vital, the need for "soft skills" is just as relevant to the job. Soft skills are also important for Information Technology graduates as they are, most of the time, given the task of project management due to their expertise in the development and installation of information systems (Gillard, 2009). Research suggests that soft skills are just as good an indicator of job performance as traditional job qualifications or hard skills. One study, for example, by The Protocol School of Washington, DC and conducted by Harvard University, the Carnegie Foundation, and the Stanford Research Institute has shown that technical skills and knowledge account for about 15 percent of the reason an individual gets a job, keeps the job and advances in that job (Crosbie, 2005). The remaining 85 percent of job success is based on individual's soft skills. This finding supports Bolton's (1986) claim that 80 percent of the people who fail at work do not fail due to their lack of technical skills but rather

because of their inability to relate well to others. Hence, what carries more weight appears to be soft skills rather than brainpower or technical skills.

The mastery of soft skills combined with an ability to innovate will also add sufficient value to engineering graduates. Such continuing skill development through lifelong learning that prevents technical obsolescence soft skills are critical (Shuman, 2005). Hence, globalization, which now includes the globalization of the engineering profession is forcing educators to reconsider the role of future engineering graduates and the education required to meet that role.

Issues and Current Scenario

The issue of unemployment among graduates is associated with the notion that graduates have not adequately acquired employability skills during their studies at the university. In Malaysia in 2007, an estimated number of 100,000 students graduated from public universities only, not counting the thousands completing their studies at private institutions and overseas (Hariati, 2007). Acquiring soft skills has been acknowledged as important amidst the stiff competition for jobs in industry today and the large number of graduates produced locally and abroad (Abang Abdullah, 2005).

With this huge number of graduates, there should be no problem for employers to get suitable candidates to fill the vacancies in their companies. Unfortunately, as many employers have often complained, most Malaysian graduates lack the necessary soft skills vital for work. In fact, according to the former Deputy Human Resources Minister Datuk Abdul Rahman Bakar, it is this lack of soft skills which is largely responsible for the difficulty faced by some 90,000 young people in finding employment in Malaysia (Hariati, 2007).

One of the efforts undertaken to enhance the employability of university graduates is through the inculcation of soft skills in higher education (Adnan et al., 2007) and the Framework on Incorporating Soft Skills in Teaching and Learning in Malaysian Higher Education Institutions. Additionally, the development of an instrument called Generic Student Attributes (GSA) was aimed at addressing the problem of unemployable graduates (Sonia, 2010).

The GSA consists of nine basic requirements which are: knowledge of the profession, competency, communication skills, critical thinking and problem solving, team skills, entrepreneurship, ethics and a positive outlook

of life towards lifelong learning. The current Higher Education Director-General Prof. Datuk Dr. Radin Umar says that Malaysian graduates must be employable because employers now are choosy due to the growth of the country's and the world's economy. Even though he agrees that we cannot do much with the economic situation, he insists that Malaysian universities have to produce students with certain attributes to make them relevant in the job market (Sonia, 2010) . This indicates the importance of acquiring soft skills for the students while studying at higher education institutions and possessing good soft skills when they graduate. Thus, it is the job of the educators to assist the students to acquire these skills.

Soft Skills for Engineering Students

For technically based occupation like engineering, soft skills are also very important for engineers to apply their technical knowledge at work effectively. Employers are now emphasizing that success as an engineer requires more than simply strong technical capabilities. Also needed are skills in communication and persuasion, the ability to lead and work effectively as a team member, and an understanding of the non-technical forces that affect engineering decisions. The rapidly changing technology, particularly information technology, corporate downsizing, outsourcing, and globalization provided the impetus for the soft skills to be even more critical today (Shuman, 2005). The mastery of these soft skills combined with an ability to innovate will add sufficient value to engineering graduates. In the 21st century, as the population grows and its needs and wants increase, and the resources of the earth deplete, the problem of sustainable development without compromising on the quality of life is a daunting task (Tasneem & Nor Azmi, 2008). Modern engineers need to reinvent themselves to meet the challenges confronting them in the 21st century; thus, they have to be willing to learn, unlearn and then relearn in order to keep abreast of the latest developments in this ever changing society.

In this increasingly global, technological economy, it is no longer enough for engineering graduates to be academically strong. They must also be able to work comfortably with people from other cultures, solve problems creatively, write and speak well, think in a multidisciplinary way and evaluate information critically (Gewertz, 2007). They also need to be punctual, dependable, and industrious. Therefore, they need soft skills to complement technical skills.

Consequently, engineering educators today are confronted with the issue of how best to ensure that engineering graduates will continue to be relevant and bring value to the job market. It is the responsibility of the universities to ensure that graduates have relevant skills to gain employment and soft skills development should be imbued into the educational syllabi. Universities should combine hard skills and soft skills in the syllabus if they would like to produce confident students with a sense of balance and proportion in these skills.

However, for engineering educators it is easier said than done. For some, allowing students to solve real problems, collaborate with others, and create presentations to demonstrate their learning, while at the same time needing to cover the content materials can be very challenging.

Objective

The objective of this paper is to report on an aspect of an ongoing study to examine the integration of soft skills in the teaching of technical courses. Specifically, we are interested to examine and discuss the challenges faced by engineering lecturers at this university in trying to integrate soft skills in their teaching of technical courses.

Methodology

In this study, a questionnaire was given to 125 lecturers teaching technical courses to engineering students at a private university in Malaysia. Amongst the items included was a section in which free responses from the participants on an open ended question on the challenges that the lecturers faced in incorporating soft skills in their teaching, which is the focus of this paper. The purpose of including this question was to tease out the respondents' views on the challenges they faced in the process. These views might not have been captured by any of the items in the questionnaire. By including the lecturers' written responses to the statements, a richer description of the issue could be obtained.

Seventy two percent (72%) of the respondents returned the questionnaires. Of the 72 percent, approximately 78 percent responded to the open ended question on the challenges. Besides the survey questionnaire, a group interview was also conducted. It would be impractical to interview everyone involved, thus it would be necessary

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to do internal sampling (Bogdan & Biklen, 2003) where individuals interviewed might be selected at random but selections would be made on the basis of key informants who would be a rich source of information representing a range of diversity and quality. Thus, in this study at least one interviewee was selected to represent the four engineering programs under study. The interview was used to gather descriptive data in the subjects' own work. This is with the intention that the researchers could develop insights into how subjects interpreted some piece of the teaching and one of the questions was on the challenges faced by the lecturers. Data derived from the open ended question and the interview was then analyzed according to themes.

Results

Findings from the analyses revealed that that there were three main challenges faced by the lecturers in their effort to integrate soft skills in their teaching of technical courses at this private university. These were the students' attitude in the classroom, limited time to cover the syllabus and large numbers of students in a classroom. Only the main challenges will be discussed in this paper. The challenges were expressed by many lecturers regardless of the length of their teaching experience and training. The details of these challenges are discussed in the next section. Table 1 below summarizes the percentage of the responses.

Table 1. Percentage of Responses

No	Challenge	Percentage
1	Students' attitude in the classroom	38
2	Limited time to cover syllabus	31
3	Large number of students in the classroom	21
4	Others	10

Students' Attitude in Class the Classroom

Thirty eight percent (38%) of the respondents stated that students' attitude is a challenge for them in trying to integrate soft skills in their teaching. Students' attitude in the classroom is compounded by the fact that students themselves were not aware of the importance of soft skills.

Hence according to the lecturers, some of the challenges they faced in class were students' lack of attentiveness to the lessons incorporating soft skills, and lack of interest in developing their own soft skills. Having been products of public examination curriculum at the primary and secondary levels, there was this tendency according to the respondent, to "rely on lecture notes and not searching they need everything without effort. They complaint about difficult questions, with this situation you cannot incorporate soft skills in teaching". They seemed to be more focused on examination oriented subjects and passing exams and were not seen as keen on developing soft skills. A note of despair was noted in the following excerpt*:*

The students' attitude and their environment have encouraged them to be less sensitive to the soft skills. There are a small group of students who are able to develop their soft skill concurrently but most of them reluctant to develop the skills. Even though we as academicians putting a lot of effort to develop the soft skills of the students, but it is useless when the students themselves do not possess the interest and capability to do so.

Students (do) not apply what they have learned in other class to another class, like report writing what they have learned in technical writing are not applied in other class where they have to write report. They don't seem to know how to relate what they have learned.

On the other hand, one lecturer had a positive note on the whole situation. Thus, this points out to the need for the lecturers to be knowledgeable in the development of approaches in teaching and learning. With the right approach, the lecturers should be able to change the students' perceptions.

Students are generally in the early stage hesitant and small numbers are resistant to some of the concepts such as cooperative learning and student-centered approach. Just need a little bit of persistence and confidence on the part of the teacher.

Limited Time to Cover Syllabus

Time constraint posed another challenge to the lecturers (31%) as they were short of time to cover the syllabus in 14 weeks. Many believed that

integrating soft skills would take up more of their valuable time which they felt could be used to lecture on important topics as evident in the following remarks:

...course syllabus sometimes is too lengthy where the lecturers have insufficient time to integrate the soft skills in technical knowledge delivery.

It requires a good amount of planning and preparation to establish a delivery framework that blends the right level of technical and soft skills. This is very time consuming and takes a lot of research, coupled with teaching experience and a keen sense of the ever evolving and changing needs of the job market.

Some of the technical courses especially engineering core subjects are 'highly technical' in nature. These are required and necessities to become professional engineers. Most of them are involved with 'technical mind challenge'. So it's not easy to blend all soft skills needed. Limited soft skills are directly involved: such as critical thinking and lifelong learning.

...since the time available to complete the course is limited, the incorporation of all the features mentioned above is very difficult.

From the remarks by the lecturers, we deduced that the deterrent was not the result of time constraint but rather their lack of awareness of the various teaching methods that they could employ to integrate soft skills in their teaching within the time that they had. Mohd Ariffin et al. (2004) state that engineering subjects have always been content driven, thus, the lecturers felt that trying to integrate soft skills like oral presentation skills, lifelong learning skills and teamwork would take a tremendous amount of their teaching time. They actually lack the awareness that soft skills can be embedded in their teaching.

Large Number of Students in a Classroom

From the respondents' voices, we discovered that having a large class was the norm at this university. Twenty one percent (21%) of the lecturers found this to be very challenging because they could not pay attention to all the students. They were aware of the pedagogies underlying the

cultivation of soft skills but were constrained by a large class. Many felt that they lost the flexibility to integrate soft skills in their teaching. The following lecturers' comments encapsulate some of the problems they faced:

Teaching in a class with a large student population, the learning process becomes more teacher-centered rather than the desired discussion, facilitation, problem-based, case studies mode.

As class sizes is more than 100 it becomes difficult to incorporate any feature that has an element of personal attention.

The big numbers of students and the vast amount of materials to cover are the challenges in order to incorporate those elements in teaching.

The lecturers who mentioned that having large number of students was a big challenge for them to integrate soft skills in their teaching were those who had been teaching for 5 up to 20 years, and with those years of experience the migration from a teacher centered methodology to a student centered was problematic. This is due to the fact that the lecturers are used to teaching engineering courses using the traditional method where lectures are supplemented with tutorial classes in which students have to solve numerical problem, and practical sessions where they did experiments at the laboratory. To them integrating soft skills means each student must be given individual attention, so with large classes they felt that they are not able to relate to students as individuals. With the traditional method they do not have to do this as in the traditional teacher-centered approach, "the main focus tends to be on the acquisition of knowledge of the content and skills of the discipline, rather than any other kinds of knowledge and skills" (Chehore & Scholtz, 2008, p.146).

Nevertheless, some of them tried their best to integrate soft skills in their teaching for the benefit of the students by inserting advice in their lectures especially on ethics, and time management. They felt that was the least they could do. And also, they sought the assistance of the tutors to facilitate the students during tutorials since the students were in smaller groups in tutorial classes.

Normally in my class I don't teach continuously. During the lecture I will find time about 5 to 10 minutes of sometime in between the lecture I used to give them tips on how to manage time, how to manage taking exams, importance of communication, ...

We found that the creativity and initiative of the lecturers enabled them to cope with the constraints. One lecturer did not seem to have any problem handling a large class and at the same time integrating soft skills like communication and problem solving in her class by employing active and cooperative learning modes. She commented:

Actually the lecturers must create the environment. It depends so much on the lecturers who have to be interactive with the students. I usually give lecture for 30 minutes, then, I give them a problem on the board, then pair up and ask the students to solve the problem in pairs. I teach them not to be afraid if make mistake because it is a collaborative work, not only one person's work. Then I call them up to the front at random to show how they solve the problem, I don't ask for volunteers. I don't have problem to make them come to the front.

This type of instruction is known as the democratic instructional approach. It is said to "…raise student consciousness about values, attitudes, and responsibilities… pedagogical strategies such as role playing/simulation, problem solving, and group discussion are democratic in nature because they encourage students to explore their attitudes and do not advocate one particular outcome" (Gregson, 1992, as cited in Kamsah, 2004).

Kamsah (2004) states that teachers who are successful in integrating soft skills in their students are those who rely more on democratic strategies. Therefore, active and cooperative learning modes are most conducive for developing soft skills.

Discussion

From these comments, it became apparent that some lecturers did not really understand the essence of this integration. Integrating soft skills does not mean that they have to add a now topic in their syllabus or add lengthy activities in their teaching. The skills could just be embedded in the existing tasks and assignments. Very few of the lecturers expressed the understanding of this integration as exemplified by this lecturer's comments:

…Typically, students are grouped into small teams to encourage teamwork, discussions and other team-type skills. Class

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presentation is used to develop communication skills. Laboratory sessions also enhance teamwork and critical thinking. Individual project assignment on current issues and research are for students to learn about things related to the class material but not in the textbook – this is for lifelong learning. Pop-quiz is also sometimes applied to teach students in the importance of being punctual and having advance preparation for each class.

Many of the lecturers expressed their concerns about the heavy syllabus content and being unable to integrate soft skills even though they would have wanted to do so. They were not aware of an alternative approach where they could reduce the number of topics to be covered and go in depth into important topics by assigning projects or short assignments which could enhance students' understanding of the topic. At the same time, students would have the opportunity to enhance their soft skills in their oral and written communication skills by presenting their work, gathering information from other people, writing reports and doing collaborative work. They would also learn ethics through meeting deadlines and submitting their own work and not giving in to the temptations of plagiarism.

What is apparent is the need for lecturers to be creative, innovative and proactive in their teaching approaches in order to integrate soft skills in their teaching. As such, they must always keep abreast of the latest developments in teaching methodology and not have the mindset that since they teach engineering subjects they must only know latest developments in engineering. As educators, keeping up with the latest development in teaching and learning is imperative if they are to remain current and effective.

This issue on teaching methods has also been addressed by the Higher Education Director-General Prof. Datuk Dr. Radin Umar when he announced that MOHE would improve the curriculum and its delivery to achieve the nine Generic Student Attributes requirements. He says, "If we want to ensure students have these attributes, it has to start with the lecturers" (Sonia, 2010). He also adds that a Learning Academy was set up in 2007 at the ministry to ensure that every single lecturer should master at least one student-centered learning methodology for them to bring back to their classrooms.

We also would like to recommend that the soft skills that are being integrated in the teaching must be identified and must also be communicated to the students. This is to ensure that students understand

the relevance of the skills to their professional success. One of the lecturers states that

> *The soft skills elements are inherent in these methods but not spelled out clearly and specifically or written out. Students may also not see the benefits of these exercise or assignments.*

This could be one of the reasons why some students have the attitude of not taking soft skills seriously. Woods et al. (2000) suggest that lecturers should discuss the skills with the same level of importance and enthusiasm that they use when presenting the technical content of the course.

Conclusion

In developing students' soft skills through the integration of the skills in their teaching, engineering lecturers at this private university are faced with various challenges. These are large classroom size, limited time to cover the syllabus and students' negative attitude in the classroom. While they realized the importance of soft skills for the students, some found that incorporating them in their lessons was a daunting task, while others relied on their creativity and pedagogical skills to enhance students' soft skills. Therefore, it is vital for all lecturers, despite the field of study that they teach (technical or non-technical) to really understand the essence of soft skills integration in teaching and learning. Keeping abreast of developments in education would ensure that they remain current and relevant in their profession, and that students be equipped with the necessary skills to survive in an increasingly complex learning environment.

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