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Pedagogical Innovations and Engineering Students' Perceptions of the Relevance of an English for Engineering Course

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Abstract: Recent trends and orientations in the teaching profession, ranging from learner autonomy, learner-centered approaches, learner-responsibility and changes in teacher role, besides labor market requirements; have led to various fundamental and radical changes in course and syllabus design, their contents, learning objectives and learning outcomes. Therefore, updating and introducing modifications and changes into course syllabi have become the norm. This enforces measuring and assessing courses effectiveness and relevance to users; instructors and learners. Instructors need to know whether the implemented changes have brought about the required effects in the learners and what those learners perceive of the course contents. This cross-sectional study of junior, senior and graduate engineering students assesses their perceptions of an English for engineering course, focusing mainly on communication skills, that they have successfully completed. A survey comprising multiple choice questions and open-ended questions shows significantly positive attitudes towards the course contents. This study also identified differences in students' perceptions of the English for engineering course by year of study and gender. The perceptions of graduate students are more positive than those indicated by junior and senior students. Female respondents show a higher mean than males regarding overall course contents relevance. While cohort effects may be present, it seems that perceptions are highly positive, becoming more so when students find themselves in a situation where they have to use the skills learned from the course.

Keywords: Pedagogical Innovations, Student's Perceptions

Introduction

Requisite engineering graduates' competencies and skills have been of interest to higher education accreditation agencies, academicians, researchers and industry. The College of Engineering (CEN) at the American University of Sharjah (AUS) places a strong emphasis on developing excellence in communication skills, both written and oral. An English for Engineering course is offered as a compulsory requirement for engineering students and the students are expected to take the course at a certain point of time during their study. The course objectives are to instill in the students oral and written English communication skills that will enable them to cope with their university education and prepare them for the labor market.

Prior to the Spring Semester, 2010 the Accreditation Board for Engineering and Technology (ABET) during its Committee's visit to the AUS to reaccredit the College of Engineering (CEN) programs made a recommendation that all engineering students should be engaged in engineering multidisciplinary projects. ABET endorsed the specification that engineering students from different majors should participate in engineering multidisciplinary projects (EMDPs) that require individual and collaborative input from each of the students in the team. Since this proved difficult to implement in specialized engineering courses (Schmidt 2007), where students from different majors generally study separately from others, the most suitable context for the change was *ENG207*

which comprises students from all engineering disciplines and from different cultural and ethnic backgrounds.

The CEN acting upon ABET's Re-accreditation Committee's recommendation, and in consultation with the English Department at AUS, incorporated an engineering multi-disciplinary project (EMDP) component into the *ENG207: English for Engineering course* in order to provide the engineering undergraduates training in a range of collaborative, communication and academic skills as shown in Table 1 below:

Table 1. Structure of the old and new syllabi

Previous ENG207 Syllabus	Revised ENG207 Syllabus
<u>Document Organization</u>	<u>Document Organization</u>
1. Curriculum vitae	1 Curriculum vitae
2. Job application letter	2 Job application letter

<u>Technical Presentation</u> <ol style="list-style-type: none"> 1. Proposal 2. Progress report 3. Technical presentation 	<u>Engineering Multi-Disciplinary Presentation (EMDP)</u> <ol style="list-style-type: none"> 1. Topic Choice and Approval 2. Proposal Submission 3. Oral Progress report 4. Poster presentation
<u>Report</u> <ol style="list-style-type: none"> 1. Proposal and draft 2. Executive summary 3. Final report 	<u>Meeting, Planning Documentation</u> <ol style="list-style-type: none"> 1. Minutes of official team meetings 2. Documentation of informal team meetings 3. Documentation of key decision-making 4. Documentation of planning 5. Gantt Timeline planning
<u>Test & examination</u> <ol style="list-style-type: none"> 1. Mid-semester 2. Final examination 	<u>EMDP Report</u> <ol style="list-style-type: none"> 1. Proposal and draft 2. Executive summary 3. Transmittal letter 4. Final report
	<u>Peer evaluation</u> <ol style="list-style-type: none"> 1. Six point attribute rating scale
	<u>Test & examination</u> <ol style="list-style-type: none"> 1. Mid-Semester Reflection 2. Final examination

Accordingly a pilot program (see Table 1 above) was developed and implemented (see Figure 1 below) during the Spring Semester, 2010 with three of the ten sections in the course. EMDPs are used as tools through which communication skills are put into context. The chart below shows the implementation procedures:

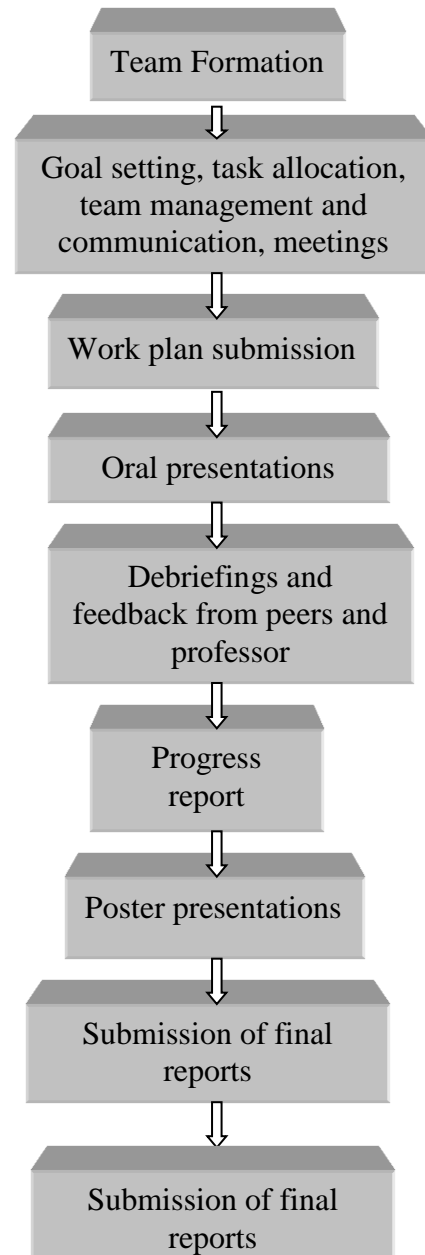


Figure 1. EMDP-Development and implementation model

A management team comprising the first author, another colleague from the English Department, the Dean of the CEN and two faculty members from the CEN met regularly to oversee the change (see Prescott et al, 2011 for details).

There is ample evidence that teaching and learning about professional communication skills (presenting proposals; writing reports; writing email messages (Wang and Aaltonen, 2004), calling for meetings; preparing meeting agendas;

minute-taking; documenting teamwork decisions; distributing work tasks; setting timelines) out of their appropriate settings does not guarantee full student involvement in the learning process and may be ultimately futile (Mercer 2006; Yu 2008; Chun 2010). Contextualizing the teaching of these skills within the engineering multidisciplinary project (EMDP) demonstrates their appropriate uses in authentic communication situations (Amare and Brammer 2005; Predmore 2005; Prescott et al 2011 and 2012). Work by Paris and Winograd (1990) has showed that transferring responsibility for monitoring learning to students through development of problem-solving strategies improves their learning because of an increased awareness of their thinking in applying these strategies. Improved levels of motivation and positive self-perception may also result and the social exchange environment of effective teamwork reveals aspects of Vygotsky's (1978) theory of socially mediated learning. The learner-centred approach, where students are actively engaged in the discovery and construction of their own knowledge and meaning through attempting solutions to real problems from their surrounding environment reflects Choo (2007), who aptly states "There is an increasing need to train students to solve real-world problems so that they can handle complex problems in their workplace" (p.187).

A further aspect of the changes incorporated in the revised syllabus is predicated on Zimmerman's (2002) concept of 'self-regulation'. He states that self-regulation is the "self-directive process by which learners transform their mental abilities into academic skills" (Zimmerman, 2002, p. 65). Self-regulated learners are "metacognitively, motivationally, and behaviorally active participants in their own learning process" (Zimmerman, 1989, p. 329). To accomplish their goals, learners set personal goals, perform strategically, monitor their progress, and adapt their approach. These skills are important for young professionals and for their future needs to be active lifelong learners. Zimmerman (2002) has identified a number of strategies for self-regulation which are germane to the individual and collaborative work which students must contribute to their engineering multidisciplinary projects. These strategies include self-evaluation, goal-setting and planning, seeking information, keeping records and monitoring and reviewing records.

Contextualizing the Change at the AUS

Taking into account ABET's recommendation and the results of internationally published research, the revised course syllabus requires students to work in multidisciplinary teams, drawn from different majors, make a succinct collaborative oral presentation, give a poster presentation and produce a written report on their multidisciplinary projects. Students are trained to conduct effective meetings, to plan and document decisions, to set planning goals and meet deadlines, to manage themselves and their peers, to show leadership and to evaluate their peers. There is emphasis on responsibility at personal,

inter-personal and community levels developing the sense of a community of professional practice (Woollacott, 2009). The course also stresses leadership qualities anchored in moral and ethical principles. This reflects the need engineers have for competencies beyond possessing sound technical knowledge and engineering skills. Again this is an ABET determined requirement. Perusich et al (2007, TSE-2) have observed "Most engineering and technology graduates will work in business on projects that have significant complexity and require multiple skill sets". These graduates will require teamwork attributes of mutual accountability, interdependence and complementary skills in order to achieve common goals and pursue common purposes. It is important to understand that such attributes are not the same as those required by or developed in group work. In the teamwork in the AUS course students need to demonstrate socially responsible, ethical procedures and principles, a point which cannot be over emphasized.

The syllabus change that now requires students to work in multidisciplinary teams has placed emphasis on team-role behavior with resulting prominence given to personal, inter-personal and team learning. These teams are formed in compliance with the following requirements; teams must be comprised of three or four students and each team must contain students from at least three different engineering major disciplines. The requirements are to ensure multidisciplinary project and teamwork. Team building as a phase of the students' EMDP work is discussed in detail by Prescott et al (2012). Students engage in team-building informed by the administration of the Belbin Get-Set Self Perception Inventory (SPI), (Belbin, 2012) used to provide both individual and team profile preferences of the nine roles deemed by Belbin as essential for well-functioning teams. Use of this instrument is intended to raise students' awareness of the characteristics of team-role behavior and assist them to develop their capacities to work together in coordinated, inter-dependent ways. Understanding the significance of the different roles that constitute effective teams is considered to aid this development. Belbin Team Roles are used to identify behavioral strengths and weaknesses and the reports the students each receive enable them "to build mutual trust, understanding and productive working relationships" (<http://www.belbin.com>, 2012).

Post Piloting Stage

Following the success and the apparent potential of the pilot program the change was applied to the full cohort in Fall Semester, 2011. As a consequence, it is now policy that AUS engineering students study *ENG207* during their junior year prior to senior design projects work and internship. Students graduating from AUS engineering programs are expected to possess an effective range of communication skills, to have developed collaborative work practices and to possess a clear

understanding of social responsibility and ethical practices (Patil and Godner, 2007). This guarantees “better graduate outcomes and ... global mobility of engineering education and profession” (Patil and Godner, p. 649).

Objectives of the Study

In line with research on teaching and learning effectiveness and in an attempt to better serve learners’ needs and industry requirements, this study explores the students’ perceptions of the relevance of the new course contents at three different, though interrelated, time intervals. For the purposes of this study, the concept of relevance is used to measure students’ perceptions of the usefulness of course contents. This concept is based on Keller’s (1983) and Frymier and Muddiman’s (2009) definition of relevance as a student’s perception of whether course contents satisfy personal needs, personal goals, and/or career goals. Keller’s (1983) relevance comprises four constructs: Attention, Relevance, Confidence and Satisfaction (ARCS). Attention refers to teacher’s ability to get students interested in the course. Relevance is the learner’s satisfaction with the course, motivation is achieved when the course meets the learner’s needs and confidence refers to the student’s expectation of getting a higher grade in the course. According to the ARCS model, relevance is achieved when instructors succeed in making students perceive course contents as targeting some requisite or required needs or goals. These could be academic (i.e. academic presentations, research projects writing, seniors designs 1 and 2, etc.), personal (i.e., leadership skills, teamwork skills, confidence, etc.) and corporate (i.e., workplace needs). That is, relevance of the course contents is examined from the users’ perspective; “user relevance” (Nolin 2009).

The study is conducted to avoid any mismatches between students’ perceptions of relevance and instructors’ perceptions of the course relevance. It also aims to ensure that learners’ acquired skills are those that their academic study and the work environment demand. When students perceive course contents as relevant this makes them “become motivated to think about the material and may retain the information for longer periods” (Muddiman and Frymier 2009:132). Along the same lines, Keller and Suzuki (2004) argue that relevance was effective when course materials were related to students’ intrinsic goals and needs. . Therefore, the results are expected to inform and guide any future changes in the course contents. The research seeks to find answers to the following questions:

1. How relevant the new course contents are to the students?
2. What are the course contents that students perceive as relevant to academic study?
3. What are the course contents that students perceive as relevant to their personality?
4. What are the course contents that students perceive as relevant to work environment?

5. Are there any gender differences in perceptions of relevance?

Methodology

Data collection tools & procedures.

For the purposes of this research, an online survey was used. In a pilot study, a draft survey was tested on a sample of 10 students, with no one reporting difficulties in understanding the questions or filling in the questionnaire. The final survey was deployed via university iLearn to all students who completed the course between 2010 and 2012. Reminders were sent to all students on a weekly basis for a period of five weeks. The overall response after five reminders was 111. The study was planned and performed by first author with help of an IT Administrator. The survey items were derived from the new course learning objectives and the skills and competencies researchers (Ashman et al., 2008; Bodmer et al. 2002; Male, Bush and Chapman, 2010; Nair et al., 2009; Harrison et al., 2007; Spinks et al., 2006; Royal Academy of Engineers , 2006; Martin et al., 2005; Rychen and Salganik, 2003; Perusich et al., 2007, TSE-2; Wckramasinghe and Perara, 2010; Woollacott, 2009) agreed upon as required in engineering graduates. The survey (see Appendix A for sample questions) included four major sections: (1) demographics, and (2) rating the importance of different knowledge dimensions covered in the new course, impact of course contents on other courses studied at university, students’ personalities and workplace requisite communication skills. Furthermore, some survey statements were concerned with problem-solving skills, self-confidence, teamwork skills, oral and written communication skills. A five-point Likert Scale was used to assess students’ perceptions, ranging from strongly agree (5) to strongly disagree (1), for some items on the survey. The survey also contained some open-ended questions.

Participants

The participants were all engineering students and engineering graduates from 5 different majors: Civil, Computer, Mechanical, Chemical, and Electrical engineering. The participants (see Graph 1) in this study were 23 third year students (junior) and 52 fourth year students (senior) year and 35 graduates who completed the English for Engineering Course at the American University of Sharjah in the United Arab Emirates.

Their gender was: thirty nine (39) females and seventy one (71) males (see graph 2).

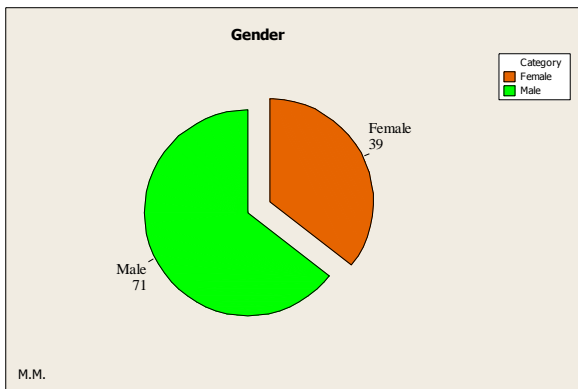


Figure 2. Pie Chart of Gender

All the respondents took the course with the first author between the years 2010 and 2012. Some have just finished the course, others finished other courses for which this course was a requirement; some have finished the course and completed their internship periods; whereas, others (35) have graduated and are employed.

Results and discussion

All the respondents, regardless of their status (junior, senior or graduates), perceive the course as a whole as highly relevant. Table 2 below displays the percentages of relevance obtained from the students' responses to research question no. 1.

Table 2. Percentages of course relevance to participants

	Graduate	Fourth	Third
0= No data	11.4%	13.5%	17.4%
1= strongly agree	42.9%	32.7%	30.4%
2=Agree	31.4%	32.7%	21.7%
3= Neutral	11.4%	15.4%	17.4%
4= Disagree	2.9%	0%	8.7%
5= Strongly Disagree	0%	5.8%	4.3%

Adding up the percentages for strongly agree and agree, we can conclude that 74.3% of graduates, 65.4% of fourth year students and 52.1% of third year students find the course contents relevant. Significance tests were conducted and did not show any significant difference in students' perception of the course in terms of their status. Similarly significance tests were applied to test if there were differences between male and female participants' perceptions based on gender, but no

significant value was observed as far as overall course relevance was concerned.

In response to the question: "What types of oral communication in ENG 207 did you find useful?" About 16% of all students indicated that oral presentations were useful, 20% indicated that mock job interviews were useful and 4% reported that Engineering Multidisciplinary Progress Reports were useful. All in all, about 60% indicated that all three were useful as can be seen from graph 3.

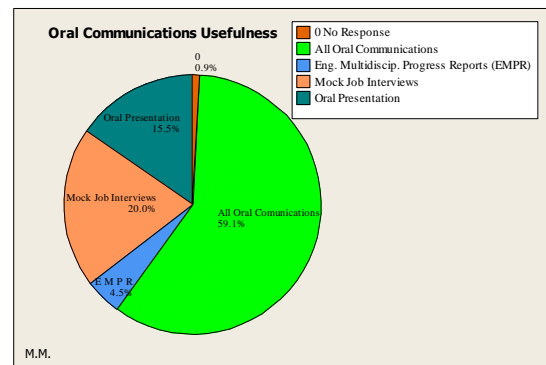


Figure 3. Pie chart of oral communication usefulness

It is found that relevance of oral communication activities differ significantly across the participants as show in Test 1 below:

Test 1. Type of oral Communication: proportion test based on academic year. Level of significance used is $\alpha = 0.05$

Sample	X	N	Sample p
1	10	23	0.434783
2	23	35	0.657143

$$\text{Difference} = p(1) - p(2)$$

Estimate for difference: -0.222360
 95% upper bound for difference: -0.00712968

Test for difference = 0 (vs < 0): Z = -1.70 P-Value = 0.045

Fisher's exact test: P-Value = 0.081

Test and CI for two proportions

The question: "What types of written communication in ENG 207 did you find useful?" generated the following responses: about 26% indicated that writing CVs and job application

letters were useful, 12% indicated that writing emails was useful, 4% indicated that writing calls for meetings and meeting minutes were useful, 4% reported writing reports as useful and 2% and 1 %, respectively, found writing memos and writing letters useful. All together, Graph 4 exhibits that about 53% found all types of written communication useful.

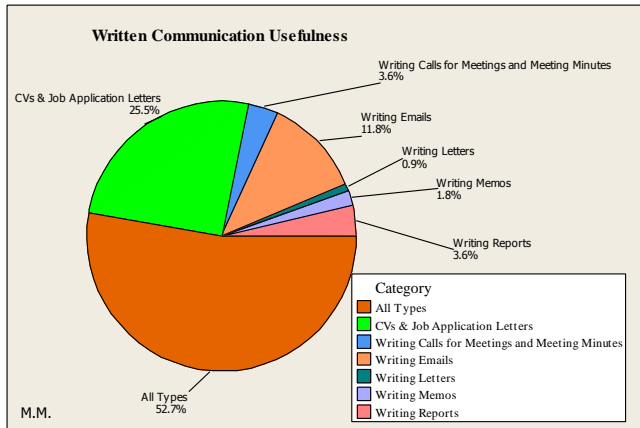


Figure 4. Pie chart of usefulness of written communication

When the participants were asked to put in order of importance the ENG 207 activities, the below response was the one that the majority agreed upon:

1. Giving oral presentation
2. Writing CVs
3. Writing emails
4. Conducting interviews
5. Writing job application letters
6. Writing technical report
7. Working on engineering multidisciplinary projects (EMDPs)
8. Writing research proposal
9. Acquiring and developing managerial and leadership skills
10. Documenting decision making
11. Writing executive summary
12. Minuting formal meetings
13. Writing memos

Here results indicate that the most important activity was giving oral presentations followed by writing CVs and emails. However, it is noticed that the perception of course contents relevance changes across respondents in terms of their status and situational requirements; that is, current needs at the time of responding to the survey. For instance, senior (fourth year) students, who are about to present their senior design graduation projects, see project presentations as more relevant than third year students and junior (third year) students, who will be soon applying for internship positions, see CV writing of more relevance than graduates. Conversely, graduates see labor market related skills as more relevant than academic study related

skills. Nevertheless, all respondents see course activities targeting personality development of near equal relevance as demonstrated in Table 3 below. In aggregate, it can be seen that 73% of juniors, 75% of seniors and 82.9% of graduates.

Table 3. Team work on the EMDP helped me gain and develop confidence in myself and skills

	Graduate	Fourth	Third
0= No data	3.8%	0%	0%
1= strongly agree	48.6%	38.5%	26.1%
2= Agree	34.3%	36.5%	47.8%
3= Neutral	14.3%	17.3%	14.3%
4= Disagree	2.9%	1.9%	13.0%
5= Strongly Disagree	0%	1.9%	0%

One of the important tasks in the revised course syllabus was emphasis on teamwork in the EMDP. In the survey students were asked the question: “Did you find team work on EMDPs very useful?”; only 6.3% of the students indicated that they disagree or strongly disagree. Proportion hypothesis test (see below) was conducted and it showed that there was significant evidence that more than 88% of all students expressed positive attitudes and perceptions towards Teamwork on the EMDP.

Test of $p = 0.88$ vs $p > 0.88$

Exact Sample Value	X	N	Sample p	95% Bound	Lower P-
1	103	110	0.936364	0.883798	
					0.039

Test 2. Proportion test and CI for one proportion

As far as gains in personality attributes are concerned, participants’ responses indicated gains in management skills, ability to deal with others from different cultural and ethnic backgrounds, audience awareness, organizational skills, problem-solving techniques, punctuality, teamwork skills, intercultural communication and ability to work under pressure. Furthermore, we examined several categories and

looked at the responses from a gender difference perspective. In most cases there were no significant gender differences. However, when asked the question: “Did team work on the EMDP help you work under pressure”, although all male and female participants indicated positive responses, yet a significantly higher difference in favor of females was observed in the responses as shown in Test 3 below:

Sample	X	N	Sample p
1	46	71	0.647887
2	30	39	0.769231

Test 3. Proportion test male vs. female responses test and CI for two proportions

Difference = $p(1) - p(2)$
 Estimate for difference: -0.121343
 95% upper bound for difference:
 0.0235975
 Test for difference = 0 (vs < 0): $Z =$
 -1.38 P-Value = 0.084

Fisher's exact test: P-Value = 0.135
 (Level of significance used is $\alpha = 0.10$)

Our own conclusion is that, students see certain course items differently according to their immediate needs. For example when asked about oral presentations, there were significant differences across academic year. The proportion of graduates indicating that all oral presentations were useful was significantly higher than the proportion of third year students. Here we can argue that results indicate that the more senior the students are, the more their relevance concept is workplace related. That is, relevance of course contents is measured by their usefulness to the students' immediate real-life endeavors/activities or other courses they were simultaneously taking. For example, third year students' relevance measure was mainly based on their perception of the pragmatic usefulness of the course contents in other courses or academic activities. This raises concerns of a possible mismatch between students' concept of teaching and learning and teaching faculty's conceptions of teaching and learning; a crucial point that is addressed below.

Recommendations and conclusion

Although the decisions concerning the revised course contents were based on ABET's recommendations, results of research on engineering requisite communication competences and engineering and English communication teaching faculty's conceptions of communication skills that engineering students need to develop, the results obtained from the current study

confirm that the respondents appreciate the revised course syllabus and view it of great relevance to their academic and labor market needs.

However, based on the above results, it needs to be made clear to students that some of the course contents they study will demonstrate their full relevance when other courses, based on them, are taken. That is, such courses present the initially required basis and context for other courses, as it is the case for many courses with pre-requisites. Of relevance here is Sperber and Wilson's (1986, 131) statement that “It is extremely unlikely that” relevance “stays constant across all circumstances and individuals”. The study, therefore, recommends that students be told that relevance of course contents should be measured with reference to or in light of immediate academic needs and prospective labor market requisite skills. That is, functionality and applicability of course contents in academic study and real life situation will eventually materialize when the appropriate contexts avail themselves. The study indicates that students, specifically junior and senior students are not fully aware of labor market requirements of engineering graduates reported on in the literature cited in this study.

On a related note, the results obtained from this study may cast doubt on the validity of students' end of semester course evaluations that they fill out at the end of each semester; an obligatory course assessment requirement that many private and public universities adopt. It is our contention that if students' concepts of teaching and learning are only based on instant and immediate situational usefulness of course contents; then students' course evaluations should be carefully and cautiously interpreted since they are filled out upon course completion and students are not yet given enough time to judge their potential relevance and usefulness. This also raises concerns about using students' course evaluation results in modifying and improving course contents and structure. This, in no way, should imply that end users should not have their input into the course updating procedures. Conversely, it is of extreme importance that students should be encouraged to respond to course evaluations as these are the only available formal channels for faculty and course designers to know what the students think of the course and how they feel about its contents. It may be a good idea to ask students their opinions of course contents across different time intervals; for example, they may be asked their opinions during the course, immediately after finishing the course and, may be, after a semester or two after course completion. Students' feedback should be viewed as an integral part of any taught course because, without it, faculty will build course contents on the needs they perceive students as needing. Besides, the industry should have their say on course contents in order for universities to bridge any potential gaps that might be there between academia focus and labor market needs.

To conclude, students' high perceptions of the positive impact the course contents have had on their academic skills, personality attributes and labor market requisite skills indicate that the new changes respond and reflect real students' needs and forge a stronger link with workplace requirements. These changes reflect, in a localized context, the paradigm shift in curriculum in many facets of education over the past few decades. However, worth noting that the results of this study are based on students' reported perceptions of course relevance. Future researchers may decide to follow up students who graduated and ask their employers about their performance and whether they satisfy and meet workplace requirements or not. Others may examine the relationship between students' perceptions and how they perform in field-specific tasks and activities.

A Final Thought

Reflection on students' perception of course relevance and that it is an ongoing and developing concept may necessitate that they be introduced to all items in course syllabus and be told about the contexts in which each item will demonstrate optimal relevance. It is also worth noting that asking students about their needs in the process of designing and building a syllabus for a course should not be the only tool used in designing English for Specific Purposes (ESP) courses since this study has provided evidence that students' perceptions of their needs are predicated on instant situational needs, while overlooking other important prospective market needs. Research (e.g., Scheja, 2006) has also indicated that students' understanding is predicated on their own personal interpretation of the concepts of teaching and learning. That is, students' conceptions of "what it means to study and learn" (Scheja, 2006, p.441). No doubt that if students' understanding of the concepts of teaching and learning are not congruent with instructors' concepts, this will make students disengage and see teaching as irrelevant. This is something that calls for immediate action on the part of instructors; that is, they need to negotiate and share with students the true meanings of these concepts to avoid any possible mismatch in understanding.

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Appendix A

Samples of the survey questions.

- 1- What type of formal oral communication you found very useful? :
 - Presentations
 - Interviews
 - Engineering multidisciplinary projects (EMPs)
 - All
- 2- What types of written communication you found very useful? :
 - Calls for meetings and meeting minutes
 - Emails
 - Letters
 - Memos
 - Reports
 - CVs
 - All
- 3- Did you find team work on EMDPs useful? :
 - Useful
 - Very useful
 - Not useful
- 4- Team work on the EMDP helped me gain and develop:
 - Good management skills
 - Work under pressure
 - How to deal with different personalities
 - Team work skills
 - Learn about other engineering disciplines
 - Punctuality and respect for others
 - Use emails to coordinate meetings and send meetings agendas and meeting minutes
 - Audience awareness (helped me know that I have to simplify technical information in my discipline to make it intelligible to team members from other disciplines)
 - Make good use of library resources in my field
 - Benefitted me a lot in Senior Designs 1 and 2
 - Made it easy for me to work in teams during my internship

- Made it easy for me to work in teams during my Senior Design Projects 1 and 2
- Gave me confidence in myself and skills
- Prepare research proposals
- How to deal with others
- Listen to and appreciate others` point of view
- Gain and improve my presentation skills
- Public speaking
- Put into practice engineering knowledge in my field
- Decision-making
- Good organization skills
- Learn from others
- Flexibility
- Problem solving techniques
- How to avoid personal conflicts with others
- Gave me training in intercultural communication
- 5- Put the following ENG207 goals in order of importance to you (from most to least important):
 - Giving oral presentations
 - Writing formal letters
 - Writing memos
 - Writing technical reports
 - Writing emails
 - Writing research projects
 - Participating in and conducting interviews
 - Writing CVs and job application letters
 - Working on engineering multidisciplinary project