Towards forging stronger links – overcoming the communication barriers between industry, students and academia

Thomas Werner
Undergraduate
Department of Geomatics
University of Melbourne
t.werner@ugrad.unimelb.edu.au

David A Hudson
Undergraduate
Department of Geomatics
University of Melbourne
d.hudson@ugrad.unimelb.edu.au

Roger Hadgraft
Associate Professor
Director – Engineering Leaning Unit
Faculty of Engineering
University of Melbourne
roger.hadgraft@unimelb.edu.au

Abstract

Communication between Industry and Universities/Academia is an important topic of discussion for this conference and many articles, journal papers and committees have tried to address the existing barriers to stronger links. Although there is a large research base for industry-academic links, a topic of minimal investigation seems to be the communication barriers that exist between students and both industry and academics. This paper provides a view of the current communication environment between students, academia and industry and presents a desired communication environment based on academics and industry together supporting student-run initiatives and expanding their involvement in strategic decision-making processes. Examples for implementation are also presented in the form of case studies and show one approach for developing a better communication environment between students, academia and industry.

Introduction

This paper investigates the current communication links between students, academics and industry in order to identify the main issues and problems that arise from the current environment. Collectively, the authors of this paper have experience in this topic through links with professional institutions such as Engineers Australia. Further experience has been obtained from interactions with over 10 spatial information departments in multiple countries as well as through the creation of a national student body for spatial information students.

The authors have liaised extensively with industry on student matters, collaborated with several professional industry associations and most of all interacted with hundreds of students on this matter. Investigations of the literature for this topic showed that this is little discussed, relative to the plethora of information that can be found on academia-industry relations. This paper therefore aims to introduce strategies for strengthening links between students, academics and industry and hence is intended to provoke more frequent and substantial discussion on this topic by the three parties.

Objective

The primary objective of a university is to educate undergraduate students in particular disciplines and graduate as many as possible into industry and academic fields. In recent times, the authors have observed that fewer students are taking responsibility for facilitating this outcome and instead are expecting industry and academia to provide substantial assistance in job acquisition, both vacation work and permanent employment. This paper outlines some of the consequences of this trend and suggests ways to share the responsibilities more evenly and allow academia and industry to encourage student participation in career development. Case studies for current initiatives aimed at sharing such responsibilities are presented as unique approaches for strengthening communication links between students, industry and academia.

Current Environment

The scope of this paper will be to investigate the academia-students link and the industry-students link, as there is a large amount of literature available regarding academic-industry communication.

Student-Industry Links

A common industry topic in the current environment is the "concern of the continuation of the industry". The Cadastral Surveying Registration Board of Victoria has confirmed that over 64% of registered Licensed Surveyors are over the age of 55 (SRBV, 2007). Concern is voiced from the industry and the professional institutions that something needs to be done to attract students into the industry; however the "task forces" that are formed to address this situation oddly do not usually invite students onto such committees and are instead informing students about the issue without requesting any student input. The Surveyor-General of Victoria, Mr. John Tulloch, stated at an inaugural task-force meeting "if the two students present today wouldn't have requested to become involved in the task-force, I personally would never have thought of it!" (Tulloch, 2007)

At Careers Fairs and other networking events that are held to develop student-industry links, students are exposed to a large number of companies, represented by both executives and recent graduates, in a formal and informal manner. At such events, when students ask representatives questions such as "what opportunities can I get from working at this company?" and "how much money will I be able to earn?". This attitude appears to be "inappropriate corporate behaviour" to those currently in industry (ABC News, 2007) and identifies students of today are not as subservient to authority (NIDA, 2007).

Student-Academia Links

The current academic-student environment is one that has a reasonable level of communication, typically between students and lecturers and/or year/level representatives meetings with program coordinators once or twice per semester to discuss the current lecture structure, pace, content and other matters. This is done in order to ensure the program is neither too hard nor too easy (boring) but is found interesting by students.

In general, this is where the student involvement in decision-making ends and, hence, strategies and decisions which influence students for many years to come are instead decided upon by senior academics on large committees within the Faculty structure, who because of such responsibilities have less interaction with students on a daily basis.

Current Environment

The interactions described above can be visualised as in Figure 1. Al though there is regular contact between academics and students, there is much weaker interaction between students and industry and between industry and academics *on matters related to engineering education*. It is acknowledged there is often much contact between industry and academics on research and consulting matters, but much less often on curriculum matters. This was an issue identified in the 1996 Review of Engineering Education (Engineers Australia, 1996) and is still not well addressed in many Engineering Faculties.

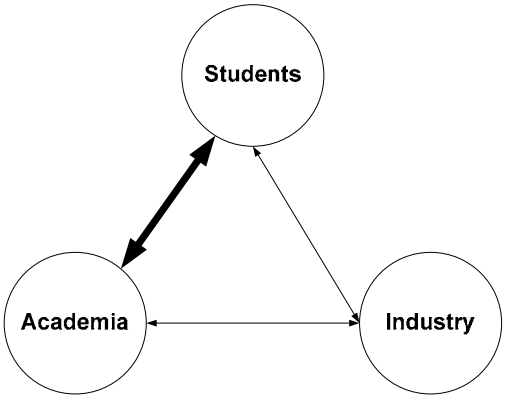

Figure 1: Current communication between students, academia and industry *related to engineering education*.

Perceptions

Given the varied levels of communication within the current model as in Figure 1, many perceptions arise from each party (Table 1). This list is not complete nor will it be discussed in detail; it is simply to demonstrate some of the obvious issues before we discuss possible strategies for overcoming the communication and perception barriers between the student, academic and industry bodies. It is hopefully also evident that this is not a suitable or stable communication environment for engineering education by any means.

Table 1: Students' and reciprocal perspectives of industry and academia

Students perceptions of…		**Industry perceptions of…**	**Academic perceptions of…**
Academia + Well respected + Have students' interests at heart	*Industry* + Large amounts of money + Many opportunities	*Students* + Hard working + Innovative	*Students* + The future of engineering + Bright and enthusiastic
Academia − Highly variable level of contact with industry − Some poor presentation skills − Respect can be lost extremely quickly if they are not up to date with the latest technology.	*Industry* − Many dated concepts and technologies − Some risk-averse baby boomers undermine young engineers	*Students* − Arrogant and Demanding − Impatient and poor communicators − Too busy having fun to secure their futures − Do not understand appropriate corporate behaviour	*Students* − Arrogant − Demanding − Impatient − Too busy having fun to secure their futures – Don't do enough work – Not really as good as "when we were students"

Strategies

Introduction

The overall aim is to achieve a well-balanced situation, where each party is respected for their positives and excused for their negatives, as in Figure 2 below.

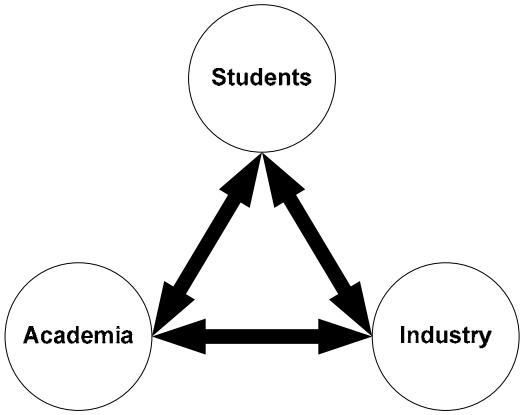

Figure 2: Desirable communication between students, industry and academia.

In contrast to Figure 1, it is obvious that a better environment is inclusive of all parties for mutual benefit. Such an environment shares ideas between the parties and most importantly, permits students to become involved in decision-making processes, not just in ensuring their future but also to make sure that the current industry continues to prosper and that the academics get a steady stream of research students. The preferred environment takes everyone seriously, regardless of experience, background and most important of all: *age*.

Strategy

The main strategy suggested by this paper is to create administrative tiers within the student body, in order to run networking forums by using existing organisations such as student clubs. Such an approach has been suggested for these reasons:

- As student clubs are run by students for students, the clubs are a good representation of the larger student body
- Student club committee members are already proactive and experienced in event management, running meetings and in general communication, so are a solid foundation for development of an administrative tier.

In many universities, there is a plethora of student clubs and it is necessary to add a coordinating body (eg the Engineering Societies Board at the University of Melbourne, discussed later), which provides:

- Increased lateral communication between student clubs, as well as cross-promotion and advertising of events
- Large event forums to better link students with academia and industry
- Reduction of various points of contact between students and industry/academia to one single contact point, reducing paperwork and time wasted trying to find the most appropriate contact

The creation of larger forums for networking students with academia and industry on a more regular basis will help create a more effective communication environment as shown in Figure 2, as communication between parties will be done more frequently and more comfortably. This will systematically occur by growing the students' connections with industry and academic representatives, as explained in the examples below.

Student-Industry Links

It is evident that professional companies and institutions are always interested in student involvement; however, they have always struggled with gaining student members (Kealy, 2007). Larger institutions have attempted to tackle this issue by creating sub-groups of the institution, such as "Young Engineers" or "Young Professionals"; however such groups are more suited to representing graduate engineers, rather than students. Such sub-groups also struggle to maintain a separate identity from the professional body. Students have always been interested in maintaining their identity by being a unique, separate entity and this needs to be extended into the involvement of professional institutions.

The formation of a student body that is separate from such institutions – but works alongside them –

whilst maintaining student identity can be visualised in Figure 3 below. Student involvement in more strategic planning at the higher levels of the institution will in turn provide benefits for both students and industry, through suggestions made by students at such higher and more strategic levels and will also assist students in seeing more of a "big picture" view of their industry.

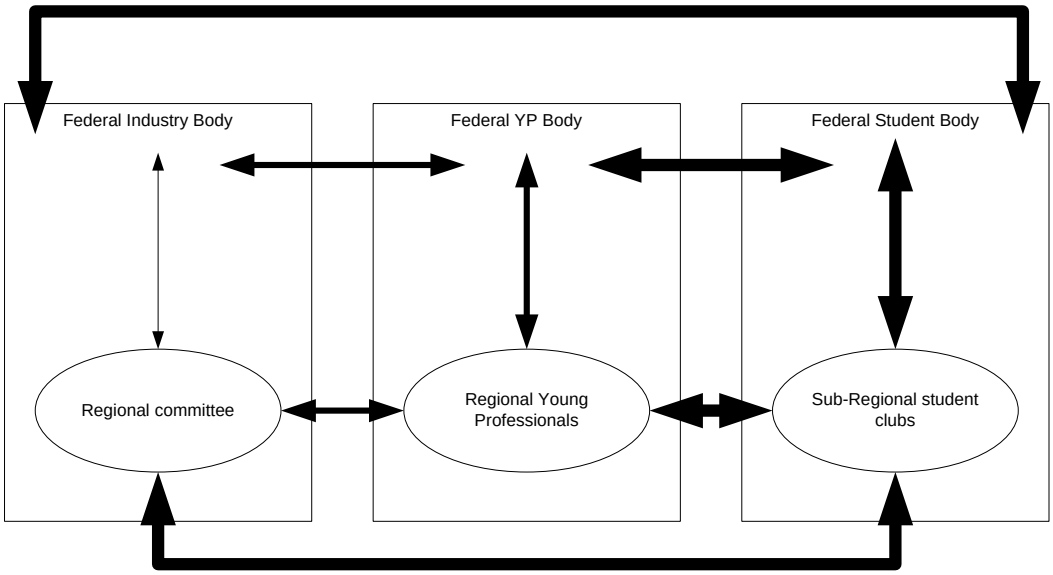

Figure 3: Proposed communication links related to student education

Developing student-industry relations

An implemented example of the above proposal is described below. It is still in the development phase at the writing of this paper; however, it has strong support from both student clubs and industry on a regional and national scale.

Case Study 1 – Spatial Students Working/Action Group (SSWAG)

SSWAG is intended to create close links between students from the 11 universities in Australia and New Zealand who offer Spatial Science degrees. While industry associations are trying to break down the barriers between students and their association, unsure how to tackle this problem, students from across the nation met in Melbourne during early May 2007 to create a committee that will work alongside industry and respective spatial industry associations. This working group will keep its own identity as a student representative body. Its foundations rest on the individual student clubs that run events, as they have the established infrastructure necessary to implement local events and also provide people to assist in national events.

SSWAG aims to develop links between academia and industry through regular meetings with departmental heads, who themselves meet on an annual basis, which will also be the meeting time of the SSWAG Committee. SSWAG will also have representation on Professional Institution Association Committees to enhance and forge closer links between the three parties on a more regular basis.

Case Study 2 – Spatial Industry Careers Night – Links between industry and students

A simple case study to explain how best to increase the communication links between students and industry is the *Inaugural Victorian Spatial Industry Careers Night*, held at The University of Melbourne in 2007. Over 300 students attended the event, as well as 34 companies, 5 professional and 2 academic institutions. The event was aimed at providing a cross-sectional view of the spatial industry and to give a larger perspective of the industry opportunities to students studying any spatial related area. This style of event had been attempted several times by both industry and academia but

they all suffered from extremely low student attendance. Because of student input through event organising, marketing and fund-raising of the Spatial Industry Careers Night by student clubs from Melbourne University and RMIT (under the *Spatial Students Working/Action Group*) the event was successful and will now occur on an annual basis.

The Careers Night provided an opportunity for industry exposure to students, not only to the industry itself, but also to opportunities each company offers. As a by-product, this event established many student-industry links including:

- Networking between students for possible employment or research opportunities.
- Formal links between industry and student clubs
- Links between industry associations and students
- Links between industry associations and student clubs

The evening also allowed each side to gain perspective of the other without creating damaging perceptions. Later year students talked about specific job opportunities and the earlier years learned quite literally about how interesting their industry was and what they would spend their days doing in industry.

Although this event was successful and there were many identified benefits, it was discovered through an extensive feedback process that:

- Several penultimate year students approached industry bluntly with questions about money and benefits – fitting closely the industry perception of students being demanding and impatient
- Industry commonly ignored first-year students because they would not be applying soon – fitting closely the student perception of some industry people undermining the confidence of young people

This somewhat unacceptable communication link – and hence perception – between students and industry should dissipate from more events and exposure on a more frequent basis. If students and industry meet more frequently at careers fairs, networking nights and similar events, students will eventually find out their "industry worth" and instead of focussing on money, will see that other opportunities companies can provide may outweigh monetary benefits.

Furthermore, when industry meet students more frequently, they will notice the benefit of communicating in more detail with interested students; as well as the benefit of speaking with younger-year students – because the later year students who remember how poorly they were treated in first year will ignore the companies that are now interested in them as they reach their final year.

Student-Academia Links

The current involvement of students and academics who liaise on a semester basis ensure that lectures are of adequate pace, standard and interesting enough for students. This has proven to be a successful communication link that students and academics use to mutual advantage. One main concern identified earlier is that such communication links cease at the more strategic planning levels. With the inclusion of student representatives on more senior committees, such as the Faculty Education Committee, communication links can be further strengthened and, as a consequence, students will gain more perspective and academics will have more of an indication of what is important to students, without needing to guess or assume. An example of the current versus the enhanced communication system can be found in Figure 4 below.

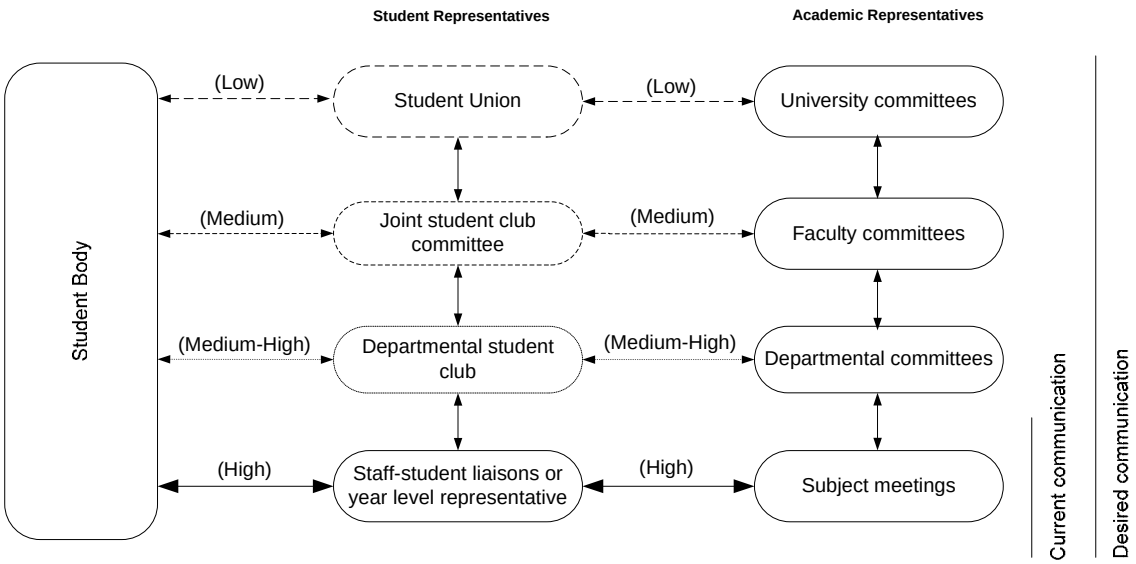

Figure 4: Desired and current communication within universities regarding student education.

Developing student-academia relations

There are a large number of student-academia relation examples that can be used; however one that proves the benefits of incorporating students in strategic decision-making comes from a new initiative implemented at the University of Melbourne, leading to the creation of the *Engineering Societies Board*.

Case Study 3 – The University of Melbourne's Engineering Societies Board (ESB)

The ESB is intended to provide a single point of contact between the 11 engineering clubs and societies at The University of Melbourne – 6 Departmental clubs and 5 Faculty level clubs – and the Faculty of Engineering. ESB has been warmly welcomed by both student clubs and also the Engineering Faculty, as we are now able to communicate with each other very easily through a single network node. One contact distributes the information to the necessary parties, in both directions. Furthermore, ESB is now considering developing links with industry bodies through the established infrastructure of existing clubs and societies (such as The Melbourne University Young Engineers) and using these to better communicate with industry, as well as advertising events such as careers/networking nights to a much larger audience. The inclusive nature of ESB will ensure that stronger links between industry, academia and students are an imminent and exciting future.

Case Study 4 – Engineering Learning Unit – Links between Academics and students

The University of Melbourne's Faculty of Engineering has developed a new initiative –the *Engineering Learning Unit* (ELU), which is a group of staff aimed at ensuring students (and staff) enjoy a successful engineering and university learning experience. The Director of the ELU is very interested in engaging the Engineering Societies Board in discussion forums to provide feedback, suggestions and comments on current and new learning structures, processes and infrastructure.

The ELU and ESB link, forms one of many ways to develop closer links between students and the Faculty, as it provides students with an opportunity to become involved in higher-level decision-making and future strategic planning.

Enhancing student interest, involvement and continuation

It is evident that we are asking a lot from students to get involved in higher tiers of academic and industry relations and, although many opportunities arise from such involvement, the level of responsibility and hence workload increases significantly. For the typical student who is involved in

clubs and societies at university, time management is definitely an attribute that is developed through their involvement. For this reason, students with such skills should be capable of dealing with the additional meetings and responsibilities. Furthermore, it gives students more incentive to become involved, because their hard work will return to them in a tangible form of differences made for the benefit of future students. Finally, the chance for students to meet other students from different disciplines or localities to achieve a common goal – to forge better links with academia and industry whilst maintaining their identity – is another reason that students will be more interested in becoming involved with industry and academic communication links.

A method for informing students about such opportunities is definitely an issue that must be overcome. Solutions can come from club advertising during student elections, grooming by club executives for the younger year representatives within the club system, or even from suggestions from academics to both the club executives and the prospective student of their potential to expand themselves by becoming more involved in a student club and in larger bodies.

Conclusion

In conclusion, there is a definite need for forging stronger links between the three parties involved in tertiary education – students, industry and academics. From student initiatives such as SSWAG and ESB, it is apparent that students are definitely interested in the decision-making process and want to be involved in deciding and securing their future, contrary to the current perceptions of those who make the decision – academia and industry.

The creation of student administrative tiers are one of many approaches that can be implemented quite easily and it is hoped that several years of student networking forums will dissipate the current inter-party perspectives that have been encountered at inaugural events.

To ensure the proposed environment suits all parties involved, the ideas presented in this paper must therefore be considered and developed by students, academics and industry to ensure that a balanced and inclusive communication environment is established and maintained.

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