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# A student-exchange scheme between Australia and Vietnam: a UMAP case study

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ABSTRACT: The internationalisation of engineering education has great potential to increase the knowledge and ability of undergraduate engineers. In this article, the authors analyse the UMAP (University Mobility in Asia and the Pacific) student-exchange scheme sponsored by the Australian Department of Education and Training (DEST), and how it has been used within the Griffith School of Engineering in Queensland, Australia, to send a group of undergraduate students to Vietnam. The main purpose of this article is to outline the scheme, the necessary actions required by the hosting institutions and, importantly, student expectations. An examination of the scheme also highlights its ability to assist with the educational development of the undergraduate student, with a particular focus on relevant engineering generic skills, including an understanding of the social, cultural, global and environmental responsibilities of the professional engineer.

## INTRODUCTION

Engineering is a profession that draws heavily on international interactions in order to maintain high standards and best practices. To some extent, most engineering companies deal with overseas countries, and thus often seek employees with international experience. In an effort to make graduate students more employable, and to ensure they have relevant international experience, many countries throughout the world incorporate an international component into their study (eg refs [1-3]). However, as a result of geographical isolation, Australian universities find it very difficult to impose such requirements. Even so, efforts are suggested, and have been implemented, in order to improve the desired international experiences of the undergraduate engineering student [4].

Like many other institutions, the Griffith School of Engineering at Griffith University, Queensland, Australia, is actively establishing more international links with universities around the world. These linkages go beyond traditional engineering research activities and extend into educational processes. Over the past seven years, the School's main aim has been to try to send undergraduate students overseas to assist in their obtaining professional work experience, exposure to different international cultures and practices, and to improve their employment chances upon graduation. Overall, the rate of finding work for students who obtained their work experience overseas is much higher than those who obtained work experience within Australia.

The programme that has proved very suitable for assisting with this task has been the International University Mobility in Asia and the Pacific (UMAP) scheme [5][6]. Every year over the past decade, the School has been awarded an Australian government-funded UMAP grant to foster student exchange programmes with international institutions in order to increase the number of graduates with cultural, language and professional experience relevant to the region. Countries that the School has associated with include France, China, South Korea, Thailand, Vietnam, Japan, Malaysia and Indonesia.

In this article, the authors present an overview of the UMAP scheme and its benefits in assisting student education. They then present the motivation for sending students to Vietnam (the latest country offered to the students by the Griffith School of Engineering), and the anticipated benefits from their living and gaining professional engineering work within a significantly different cultural environment.

## THE UMAP PROGRAMME

The main aim of the UMAP scheme is to foster educational links between Australian universities and other universities in Asia and the Pacific ([5]). The scheme has been supported by the Australian Department of Education, Science and Training (DEST) for a number of years [6]. Indeed, over the years, the UMAP scheme has been very useful in providing financial assistance for students to find work experience overseas. The two key criteria for a host university to participate in the UMAP scheme are as follows:

- All fees must be waived;
- Credit earned during the scheme must be transferred using a UMAP Credit Transfer Scheme (UCTS), strictly set out by the DEST.

Anecdotally, the UMAP scheme has brought significant benefits to the students - not only in terms of technical knowledge in the field of civil engineering, but also in terms of learning a different culture, a different language and vast experience by working and studying in a different country. An objective of the UMAP programme is to assist students to obtain their professional practical work experience (12 weeks is required before they can become graduate

members of Engineers Australia). Students are carefully prepared so that they can apply their knowledge to real-life problems.

After the announcement of grant allocation in October of the year the UMAP is granted, e-mail and telephone communications between Griffith University (home institution) and the host institutions are carried out. In 2004, this was HoChiMinhCity University of Technology (HCMUT) and the Institute of Building Science and Technology (IBST), Vietnam. Detailed arrangements are then discussed and, in May of the following year, an officer from the home institution travels to the designated country to finalise all arrangements made between the two institutions and to also inspect facilities, equipment and laboratories at the host institution. In late November, after finishing their final examination, students depart Australia to begin their involvement with the UMAP scheme.

The main task of the host institution is to organise a number of industrial companies who are willing to recruit students for their 12-week professional training. A detailed syllabus must also be finalised prior to the student's arrival. The main task of the home institution is to ensure that students are appropriately assigned to suitable companies. The civil engineering programme at Griffith University has three majors, namely: Construction, Coastal and Environment. In 2004, the first two of the three majors were particularly popular with the majority of students (13 of 17) working in the areas of construction and coastal engineering at the HCMUT; while 4 of the 17 students were working on construction management projects at the IBST. At both host institutions, students were taken to on-site constructions, and participated in small design tasks of large construction projects.

Overall, the UMAP scheme appeared to be very helpful in terms of making students more competitive upon graduation, as well as offering a golden opportunity for staff to develop international linkages. Via the UMAP 2004 scheme in Vietnam, a number of joint projects between staff from the School of Engineering and the HCMUT's Department of Civil Engineering majoring in coastal engineering were initiated. In particular, a project on flood prediction in the Mekong Delta region is currently under investigation, with the project being submitted to the Vietnamese Government for possible funding. Additionally, an articulated programme between the HCMUT and the Griffith School of Engineering was established in April 2005.

## WHY VIETNAM?

Vietnam is a developing country that can be regarded as a poor country by the western world. But why was Vietnam chosen as the destination for the UMAP 2004 scheme? Firstly, Vietnam is a part of Asia, which is the first criterion that must be met according to UMAP regulations. Secondly, despite being a poor country, Vietnam has an active construction industry that provides an ideal location for students to obtain professional work experience.

Additionally, as mentioned earlier, the main aim of sending students on the UMAP scheme is for them to obtain practical experience in another country as opposed to simply relearning knowledge they learned in Australia. This is the main feature that attracts students to joining the scheme and also what makes the scheme successful.

## DIFFERENCES IN CULTURE AND BACKGROUND BETWEEN VIETNAM AND AUSTRALIA

Even though Vietnam has been shown to be an exciting country to visit for the UMAP 2004 scheme, a number of difficulties were evident. Firstly, none of the students could speak Vietnamese, which meant they required training in communicating in Vietnamese. This was achieved through their attending a basic Vietnamese language course offered by the School for the six months immediately prior to participating in the scheme. Fortunately, one of the School's staff (who was of Vietnamese origin) took charge of this class and gave face-to-face classes. In the future, if a common country were to be used for an exchange programme, more formal educational processes would be recommended (eg [7]).

Secondly, vast differences were evident between the working conditions and cultures of Vietnam and Australia, which could cause significant problems for students. The working hours in Vietnam are from 7:00 am to 4:00 pm, with the sun rising early in the morning. The Vietnamese weather also plays a major part in this as there are only two seasons per year: wet and dry. Additionally, the weather is always hot and humid, with dust and car horns sounding on the streets 24 hours a day. All of these factors may wear students down.

Vietnam is a communist country, which means different rules apply and that things must be performed in order. For example, an 11:00 pm curfew is imposed every night, and students were not allowed to wear shorts while performing professional work, which came as a major surprise to most students even though they had been told of this beforehand.

Having said that, the major advantage of working in Vietnam is that the Vietnamese people are very friendly and helpful. The friendliness of the Vietnamese has also significantly helped students to successfully complete their professional work experience in Vietnam, and also made their trip to Vietnam a memorable one for many years to come. Many students returning from the UMAP scheme have become noticeably more mature, experienced, confident and assertive, which is an encouraging sign.

## HOST INSTITUTIONS: VIETNAM

There are two host institutions for the UMAP 2004 scheme: HoChiMinhCity University of Technology (HCMUT), and the Institute for Building Science and Technology (IBST).

The HCMUT, located in southern Vietnam, is the most selective university in Vietnam. Founded in the early 20$^{th}$ Century, with civil engineering being the premier teaching training area, the University also has international links with universities and partners around the world in countries such as Australia, the USA, France, Germany, Japan and South Korea. Additionally, the HCMUT possesses a wide range of testing equipment of an international standard that would greatly help Australian students adapt to new working conditions. The University's recent cooperation with the University of Tasmania, Australia, in 2003 (via an exchange programme) involved courses taught in English at the HCMUT. This showed that the HCMUT is on its way to transforming its courses to English, so that its students are more equipped for future endeavours with international universities around the world.

The IBST, located in northern Vietnam, is well-known in Vietnam for its expertise in constructing significant and innovative projects within the country, such as the Red River Dam and the ThangLong Bridge (the longest bridge in Vietnam). The Director of the IBST, Associate Professor Tien D. Cao, together with a number of senior academic staff from the School of Engineering, have been active members of the Asian Concrete Code Committee.

## STUDENT FEEDBACK ON THE UMAP SCHEME BEFORE LEAVING AUSTRALIA FOR VIETNAM

Prior to departing Australia, students were asked to complete an anonymous questionnaire, with questions targeted to assist in the development of an understanding of student expectations and perceptions of the programme. The questionnaire outcomes could also be used by the Griffith School of Engineering to gain an improved understanding of what students expected to achieve while overseas, and thus if improvements in student preparation were necessary and could be made. Some of the responses (indicative) from a series of questions are presented in Tables 1-3.

When asked about their expectations before undertaking the programme (see Table 1), it was clear that students wanted to gain extra knowledge in their chosen field through practical experience. Significantly, the students also wanted to gain cultural experiences. This is certainly a critical component of the UMAP scheme and it addresses a two of the key graduate attributes expected by Engineers Australia [4]. These two are as follows:

- The ability to function effectively as an individual and in multidisciplinary and multicultural teams, with the capacity to be a leader or manager, as well as an effective team member;
- An understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development.

Table 1: What were your expectations before undertaking the programme?

| |
|---|
| *The expectations were to gain my 60 day work experience required and to become familiar with another country/ culture* |
| *That I would learn a lot and have some fun too* |
| *To receive some good engineering experience in a range of fields* |
| *To learn in a workplace and also experience the culture of a different country* |
| *Learn about some different cultures first hand* |

While cultural experiences can be gained locally, it is expected that the true extent of any difference can only be clearly experienced through visiting other countries (also supported by [7][8]). Therefore, it is evident that students gaining work experience within a country with distinguishable cultural differences will have significant opportunities to develop these attributes.

When compared to the western-based nature of Australia, Vietnam certainly provides these differences at both the social and professional levels.

Another graduate attribute required by Engineers Australia is:

- Expectation of the need to undertake life-long learning, and the capacity to do so [4].

It is evident that, when asked about their motivations for participating in the UMAP programme (see Table 2), students had clear expectations of gaining experiences that would assist their education, ability to be a professional engineer, and to gain future employment.

It is also worth noting that, like most undergraduate students, these students also saw the UMAP scheme as a (including financially supportive) way to travel and see the world – a point not considered negative, as it adds to their cultural experiences. The latter has also been observed to assist students in becoming motivated to participate in the language education classes held by the School before their departure.

Table 2: What was your main motivation before joining the UMAP programme?

| |
|---|
| *Being funded to visit overseas* |
| *To see engineering in another culture* |
| *Travelling and the need for some experience* |
| *To go overseas* |
| *Travel and experience* |
| *To see the world. To organise my work experience report. All my mates were doing it* |
| *For our work experience to be part of our holiday and when it is overseas it is to the benefit of finding a job* |

The benefits of the UMAP programme were very clear to students (see Table 3). Students certainly saw the cultural benefits and the opportunity to build team skills through group interaction (another attribute required by Engineers Australia). The reference in Table 3 refers to the preparation workload, which primarily consisted of the language training programme and the basic organisation of travel arrangements, which must always be considered an important part of any international exchange programme. Even if language is not an issue, any cultural differences should be highlighted before students travel. Part of the student workload also involved routine matters, such as visa and passport acquisition, as well as medical preparations. This was also seen as a benefit as it prepares students for future overseas work.

It is interesting to note that students did not place high importance on the technical engineering content of the programme. In no way was this seen as negative, as such technical training is delivered throughout their undergraduate programme, while the UMAP scheme is directed more at the cultural and personal interaction development. Indeed, students can be taught how to design a bridge in a classroom, but they cannot begin to understand how the attitudes, work practices and cultural concerns of a workforce need to be dealt with in order to achieve a successful engineering outcome. While the exchange programme certainly cannot achieve all this, it acts as a starting point from which students can continue to build their own professionalism. Again, this helps satisfy the development of the student's generic skills base, particularly the need to develop an understanding of life-long learning [7]. Students'

comments also helped to quantify areas that need to be emphasised more to students in future years.

Table: 3 What did you see as the benefits of the UMAP programme? Please comment on the UMAP workload.

| |
|---|
| *Getting to compare overseas work with work in Australia. And the expectation of engineers in other countries* |
| *The benefits were seeing another culture and learning how it is that other countries do their engineering works. The workload was good, just enough to keep busy and not too much* |
| *Workload was manageable, had a big report due at end of visit and presentation* |
| *It is funded. University students not getting Centre-link would find it practically impossible to go otherwise* |
| *Work and cultural experience* |
| *Confidence. The ability to cope in any situation, regardless of language. The workload was sufficient, however, at times, it was unorganised* |
| *To gain experience in a less privileged country and to meet Vietnamese for a job in Vietnam when we graduate. The benefits are a good holiday and getting to know more boys from Uni in our big group of 13* |

## CONCLUSIONS

The Griffith School of Engineering at the Griffith University, Australia, has realised the importance of securing a broad education base for its undergraduate students. In part, this was to ensure that, upon graduation, students have the necessary attributes to be an effective graduate engineer. Significantly, these attributes are not limited to technical knowledge, but also extend to cultural considerations.

In view of the information derived from an anonymous questionnaire undertaken before students departed for their overseas experience (summaries presented in Tables 1, 2 and 3), it was clear that students' expectations of the UMAP programme in 2004 in Vietnam was to experience a different culture (ie Vietnamese culture) and also to enhance their future careers, which is essentially the UMAP's main goal set out by the DEST. It is expected that these expectations, and the experiences gained, will assist students to develop generic skills to a level that would not be achievable without such a scheme.

The results of the questionnaire also show that it is essential that the programme be correctly set up and that students have continual reinforcement of the expected scheme outcomes.

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