

International Students: A Mindful Approach

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Abstract

In the Academic year 2010-2011 the School of Chemistry and Chemical Engineering (SCCE) at Queen's University Belfast (QUB) saw the first large scale inclusion of students from East China University of Science and Technology, (ECUST), seconded into the Level 3 of our chemistry programme. The students had a specific interest in developing their laboratory and research skills. This paper discusses our experiences from a broad perspective and in so doing highlights challenges and issues as outlined in the Higher Education Academy (HEA) literature and includes a case study of the experiences of our international students. Reference is made throughout to the HEA International lifecycle as a framework to discuss the experience. Strategies and support put in place for our international students are discussed and an account of the mutual learning experience that this inaugural year offered is shared and supported by information obtained from a student survey, the Staff Student Consultative Committee (SSCC), focus groups and informally. These consultations took place both throughout and at the end of the year. This feedback provides an insight into the student experience, which can be used to inform a future approach and facilitate the continued provision of the necessary student support. The paper also includes some practical material prepared especially for the laboratory teaching environment, and a bilingual list of common laboratory equipment and materials which is included in the supplementary data.

1. Introduction

“internationalisation of higher education and international student numbers have increased greatly in the UK with the Prime Minister's Initiative (PMI, 1999 & PMI 2, 2006) being one of the main driving forces for recruitment (Hyland et al, 2008)”.

The majority of our international student intake in Chemistry and Chemical Engineering at Queen's University Belfast (QUB) comes from China and Malaysia. This is representative of the changing landscape of higher education (Hyland *et al* 2008). Support by the school is offered to all international students regardless of their entry route. While the school has a large number of international PG students, this paper focuses on students on the undergraduate pathway. All undergraduate international students in Chemistry and Chemical Engineering were surveyed; however, the opinions of the students from East China University of Science and Technology, (ECUST) are predominant, reflecting the large proportion of students from ECUST as they formed by far the largest group.

Inclusive integration of a large number of international students from ECUST into Level 3 of the degree program provided specific challenges to the School. Of particular interest to the Chinese students were the laboratory classes and research projects. Both integrated and group specific support was provided by the school to support the student learning experience. The students were consulted in four ways, survey (anonymously), Staff Student Consultative Committee (SSCC), focus groups and informally. In this way we hope to foster an excellent environment in which both the group and the individual are guided to achieving success.

Guidelines on the provision of teaching to international students are outlined by the Teaching International Students (TIS) Project. The TIS project is a joint initiative between the Higher Education Academy (HEA) and the United Kingdom Council for International Student Affairs (UKCISA) with funding from the Prime Minister's Initiative 2 (PMI). This project has produced guidelines and highlighted specific areas of best practice with respect to international student learning. From this the International Student Lifecycle (ISL) was prepared which is used to form the structure of this report on the range of issues arising from a year in the life of the students, the institution and the staff.

2. Survey

The survey was designed to aid our understanding of the international student experience for the academic year 2010-2011

The majority of the survey was in the five point Likert type scale (Reid 2003) designed to determine the attitude of the students towards their year in QUB, both in general, and for specific modules which had a significant international student presence. 16 students took part in the survey. (See supplementary data.)

The last section invited the students to comment on their experiences and provide insights into areas of most and least favour. The data, extracts from focus groups and the survey are included in the (supplementary data) and are referred to throughout the paper.

Overall the survey revealed a high level of satisfaction from the students. The questions on how far the staff made the students feel welcome and on the laboratory training scored highest with a joint score of 4.65/5. Of particular favour were the research projects. The students overwhelmingly stated that this was their favourite part of their studies.

3. International Student Lifecycle

The International Student Lifecycle (ISL, Figure 1) is a useful guide to the diverse learning needs of international students. It also outlines steps of interest to the International student from 'pre arrival preparations to next steps'. (HEA web resources ISL). This report will use the ISL as a framework to discuss our experiences, reflection and action.

Figure 1 The International Student Lifecycle (HEA web resources ISL).

3.1 Pre arrival support

Pre arrival support is provided by the international office and school management committee.

A typical schedule of events is

- March: Students informed of possibility of coming to QUB
- May: Forms to be completed by students and sent to QUB Application forms received. Decisions made and sent to International Office.
- Students Informed of decision and are advised to book accommodation.
- August: Students attend English course in home country.
- September: International students arrive

QUB Orientation induction program organised by International office, followed by welcome week.

- o School specific welcome and induction events.
- o Students meet dedicated advisors of study (enrol on modules).
- September / October: Term starts.

- January: Industrial visit.
- February: Introduction to Post graduate opportunities.
- April: Industrial visit.

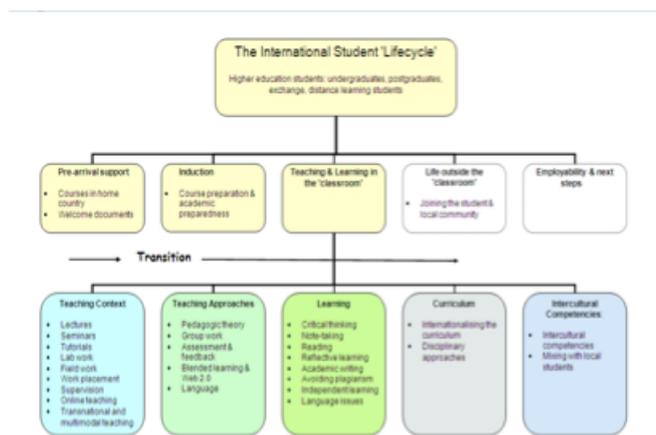
Only one issue arose from the focus group regarding pre arrival. Students said that they were unaware of what courses were available to them until they arrived. It was agreed that the synopses for all courses will be provided before the students come to QUB ensuring that their enrolment and module choice will be easier for them in subsequent years.

3.2 Induction

Induction takes place in two phases: Induction at university level and Induction at school level.

3.2.1 Induction at University level

“At the start of each semester the University holds a Welcome and Orientation programme for our new international students. The programme includes lots of useful and interesting sessions and exciting activities to help you make new friends and get settled in



to life at Queen's. After International Welcome and Orientation, our new international students join all of our other new and returning students for the University's main welcome programme, during which you will meet local students, find out more about your School and your studies and enrol on your course!”(QUB Web resources)

3.2.2 Induction at school level

International students are welcomed to the School of Chemistry and Chemical Engineering (SCCE) with a reception where they informally meet staff associated with their studies. This is followed by a series of lectures/workshops.

During the SCCE welcome week the school provides induction on safety, and services. The students are introduced to key staff who will be involved with their study, welfare, safety and laboratory support. The students also receive information on research projects and are asked to rank their preferred areas of interest. As a result of the focus group the students requested time to discuss projects with individual staff members and this has now been introduced. As a result of survey discussion and reflection another key part of the induction program will include an updated session on study skills. This will incorporate aspects of learning such as note taking, reading, reflective learning, use of the VLE (QOL), exam style, feedback and independent learning. One example of an issue to be covered in the updated study skills session is exam protocol. We were made aware of an exam style which was noted to be common among a particular cohort of our international students. These students used rough work paper in exams, often in their home language, to organise their thoughts for the question being answered, transcribing only some material to the examination booklet. Under exam rules this had the consequence that only the material written on the examination booklet could be marked and the students' rough work could not be included. The study skills session is followed up with sessions on academic/scientific writing (module CHM 3007) a module specially created to aid the transition to scientific writing from an international student perspective. This module was well liked by the students at survey (4.5/5) and will be retained without change. This is vital for the students entering at L3 who will have to cope with a research project and associated thesis.

Using a blended approach, some of the aspects of learning from the ISL are combined with induction. Induction has been used as a powerful way to teach, rather than just tell, students about how undergraduate education works and what is expected of them. This is useful in settling all students into their course, (Scudamore 2011). This way the students will know what is expected of them from the start. Removing ambiguity of expectation empowers the students. Allowing the students to develop their skills in well defined boundaries facilitates a deeper learning experience and allows ownership of course material to occur at an earlier time in the learning process.

Further down the line of induction or shortly thereafter the students will meet their PDP tutors (if L1/2) and/or their advisors of study. Students then meet their individual tutors and project supervisors once the projects are allocated.

During Induction students are also invited to choose a class representative to sit on the SSCC.

At the end of induction/welcome week we hope to have set out clear guidelines and boundaries for the students so that the students know:

- What to expect from us
- What we expect from them
- Who to see in the event that they have difficulties or queries.

Some of the comments at the focus group led the school to prepare a dedicated student handbook for international students with reference material to supplement induction material. From 2011 it will include local guides to shopping and services. The content of these guides was informed by the experiences of previous international students. Some of our undergraduate international student cohort from 2010-11 are coming back to pursue

research masters degrees and have pledged their support in helping with the induction and orientation program for incoming students. They are prepared to help pick up from the airport and show the new students around Belfast. A great deal of thought was put into the induction program for 2010-2011 as it was the first time that the school experienced such a large intake of students, a survey score of 3.68, while good, was lower than the score for other areas. By using student feedback we are responding to the student needs. By making the changes discussed here we further enhanced induction in 2011-2012.

3.3 Teaching and learning in the classroom: differences in pedagogy across disciplines and cultures

There are many differences in pedagogy [across disciplines and cultures](#) and the teacher/lecturer – student/pupil relationships, and learning methods can be very different indeed (Kingston & Forland, 2008). Introducing a large group of international students creates an entropic mixture full of different learning styles and experience. While we recognise the teaching and learning styles of UK students to be non homogeneous we have also to expect that the addition of learning styles and expectations from international students will further induce chaos into the student mix. Understanding this ultimately leads to a better student experience.

Eliot Eisner (1983) points out that “teachers who truly master the art of teaching are those willing to build a continuously expanding repertoire of instructional strategies in order to teach all learners effectively”.

Over reliance on one type of teaching will only continuously favour one type of learner. The introduction of new cultures and traditions to a classroom environment brings with it a chance for the educator to develop as a teacher and build on their talents and strengths. It also allows the students to gain a world perspective and learn from each other.

Recognising that all students have diverse experiences and approaches is important. Preparing a range of styles, experiences, support and feedback is vital for the individual. One of the benefits of teaching chemistry to international students is that there are many similarities between students in chemistry -- our language is common, the symbols and structures are universal. One view is that internationalisation of the curriculum is less of a problem in the physical sciences. A recent seminar by the HEA discusses and explores this attitude.

“I teach chemistry and oxygen works the same the world over.’ Research, resources and reflection on international students and internationalised curricula –. (HEA web resources).

While this is true in part, it does not always reflect a full and modern curriculum. Chemistry is indeed an international language and while chemistry can and is detached as a subject, the work of a chemist impinges heavily on the shape of our world and on our society at large. When teaching chemistry we need to be mindful of world cultures and traditions. When using case studies, we should strive to motivate students by using culturally inclusive pedagogy. The most obvious way to do this is through using examples that reflect a global chemical industry as well as a domestic one, indeed global issues are reflected upon during the degree. For example, issues such as green chemistry and sustainability, when taught at undergraduate level, often include discussions based on social responsibility.

International students bring with them a different perspective. We should take time to time to develop a 'meta-awareness' of other cultures (Ryan & Louie, 2007) and integrate it into our curriculum. Eastern students comment on how they see their society developing rapidly, with large scale building and manufacturing; they see the importance of getting it right and they do not want to leave a legacy of pollution. This is particularly important because the rapid development in the east is on a much larger scale, and therefore has a much greater global significance.

Allied to this is another pedagogical difference commented on by the international students. In the west we are good at connecting a subject to application and or philosophy. In science this is often executed through the use of Context Based Learning (CBL) and Context and Problem Based Learning (CPBL). Scientists and engineers highlight practical applications and industrially significant examples. (Overton & Bradley 2010), (Reid. N., 2000), (Belt *et al* 2002). From discussion with students, they enjoyed the field trips to industry organised by the SCCE. The students felt that it gave them the chance to put their learning into context. The success of these trips has led to the school striving to extend this program. The students love the practical and applied nature of our teaching and valued and enjoyed the practical experience of laboratory teaching greatly. This is pleasing as a great deal of effort was made to make the students feel welcome, supported and secure within the laboratory environment. In the Survey the students overwhelmingly stated that the research project was their favourite part of their experience.

3.3.1 General points on teaching delivery

Lectures are supplemented by notes on the VLE (QOL) which can help chemistry students to spend more time during the lecture concentrating on the spoken and written word. A study skills component at induction can be used to explain the benefits of bringing printed or downloaded notes to lectures. The students commented on the usefulness of this system

scoring it 4.56/5 on survey. This coupled with lecturers avoiding a colloquial style, allowing down-time in the lecture, providing instructive titles and varying intonation and delivery appears to be a successful approach with international students. (Hyland et al 2008)

The experience of a new culture of learning appears to be one to which the students react positively once they had time to acclimatise.

3.3.2 Critical thinking

In the ISL the sections have expanded in recent years to include areas of interest which have been identified through experience. In particular issues such as critical thinking (Ryan & Louie 2007) are being discussed...

“Much has been written on the supposed lack of critical thinking skills amongst international students. There are even (false) claims that there is no equivalent for the term in some cultures or languages such as in Chinese. International students need to be explicitly taught the forms of expression of critical thinking and inquiry which are expected within their particular context and discipline. (HEA resources website ISL)”.

3.3.3 Critical thinking & independent learning through small group teaching.

Teaching critical thinking skills through small group teaching is a good way to address to address this perceived issue. Our international students 2010-2011 scored their experience of small group teaching highly on the survey (4.5/5).

According to (Chuah 2010) “East-Asian students learn by listening; they want to fully absorb and understand what is being taught. They don’t feel that they have the “right” to question what is being taught until they have completely understood all aspects of it.”

The SCCE runs small group tutorial sessions for L1-3. Our international students are integrated into the classes and groups of typically 5 meet once a fortnight to discuss pre submitted work. The teacher marks the work and the small group session is used to discuss the material brought in by the students. Tutorial style small group teaching serves as a good forum to discuss topics and develop critical thinking. Pre preparation of the answers encourages independent learning and helps to reinforce the values of reading around the subject. The discussion of pre marked work is a good method of formative assessment. Students are encouraged and given permission to voice their own opinions rather than that of a prescribed text. A perceived lack of critical thinking may come from cultural differences, with students feeling they should work only from teacher recommended texts. Students may feel like they are being disrespectful in bypassing a prescribed text in favour of a different one. The difficulty with understanding critical thinking and perceived plagiarism may have the same route. Students may feel like they can’t express themselves as elegantly as the textbook and wonder why the teacher would want to know their version when this author has said it in a more elegant style? We as educators have to remember to give our students permission to express themselves and find alternative texts and approaches. We need to offer opportunities for the students to practice and evolve their learning styles. Good small group tutorial sessions further benefit their learning by introducing, question styles and levels of difficulty that mirror exam questions (Stanne et al 1999).

Other positive outcomes of small group tutorials are integration, inclusivity and student welfare as the students get a chance to build up a relationship with their fellow learners and the teacher.

3.3.4 Independent Learning

This is not just an international student issue. Domestic students find the transition from school to university a steep learning curve (Boud 1998) (Knowles 1975). Students have trouble making the transition to the more independent learning style required for university compared with their previous study. The concept of reading for a degree has faded and students' expectations of university teaching are formed by their school experience. University study requires students to take responsibility for their own learning. Rather than this happening automatically at level 1 it is progressive. The degree pathway is a process of building the confidence and skills needed to be more self-directed, to make decisions about what they will focus on and how much time they will spend on learning, both inside and outside the classroom. Taking a large volume of students into L3 from another institution may result in the transition being especially difficult.

“International students are often used to more support and direction and even ‘parent-like’ relationships with their teachers at university. It will be useful for them (and all students) to know precisely how they are responsible for their learning in their new setting”. (HEA website ISL)

This is why it is and will continue to be discussed at induction. Small group teaching tutorials and workshops are excellent ways of fostering these skills through practice and feedback in a small group. Introducing a reflective approach is also beneficial to the whole

student community (Hammond and Collins 2000). It is a case of not having to do anything differently with respect to extra classes but being more directed to these issues within the current teaching modes. Mastering the art of independent learning affords the student greater self-motivation and organisation skills and greater self-awareness. Linking critical thinking skills and independent learning through coursework, research project, and small group teaching will ultimately lead to a more fulfilling educational experience. This will have a positive impact on employability skills (Fallows and Steven 2000) (Atkins. 1999).

3.3.5 Avoiding plagiarism

Students are made aware of the concept of plagiarism at induction; intentional and unintentional plagiarism are discussed and procedures for dealing with plagiarised work and penalties imposed are explained.

In the majority of cases plagiarism is unintentional (Wells 1993) and the cases where it is intentional are more obvious and clear cut. There is room in this discussion for the theory that unintentional plagiarism is strongly linked to issues in critical thinking and independent learning. Students need to be made aware of the difference between referencing and plagiarism (Carroll 2002). As addressed in the section on critical thinking and independent learning in small group teaching, the difficulty with understanding plagiarism on a functional level and lack of practise in critical thinking may have a similar route. (Chuah 2010) proposes that students may feel like they can't express themselves as elegantly as the textbook, copying chunks of an author's work is easier than paraphrasing, which is a higher order English language skill. Often immature referencing skills coupled to a cultural and pedagogical differences, can lead to work which may appear to be plagiarised. (Scudamore 2011) (Bamford and Sergiou 2005). The use of plagiarism detection software as a teaching tool could be a useful in helping a student to understand and assess the quality of their written work. This would be especially useful for course work. A student can

see how the work reads and get an assessment of how much work comes from external sources and how well referenced it is. Embedding plagiarism into teaching has been shown to be a useful endeavour (Barrett and Malcolm 2006).

The survey showed that there was there was a diverse range of English language qualification and attainments. Therefore the issue of plagiarism needs to be revisited when instruction is given for individual coursework.

Educators have to be explicit with respect to expectations for coursework: lab reports, essays, research projects etc. As educators we should communicate our requirements and check that we are understood. This is especially important when preparing material for research projects. We have to communicate effectively to the student that we want their opinion and that their point of view is valued. The school found no instances of plagiarism amongst international students in 2010-2011.

3.3.6 Student Welfare/support

Student support and welfare is not currently integrated into the ISL. Student support/guidance for international students is a vital part of the student experience. QUB has a dedicated section of the student guidance website for international students and the international office organises exclusive and inclusive welcome programs and introduction to university student services. (QUB Web resources).

Most East-Asian students who come to western universities are government or self-financing. They can be under a great feel of pressure to succeed; in fact, their funding may depend on it (Chuah 2010).

The individual schools and the staff have an important role to play in the continued welfare of all our students (Boud 1985)

Specifically international students have cultural and language differences to master as well as university life, a typical cycle of emotions was depicted by (Scudamore 2011).

Comments included:

- Euphoria: everything is new and exciting;
- Disorientation: anxiety, sense of loss (of friends, status, environment etc.), confusion;
- Rejection by and/or of the new culture: surprise, indignation, feelings of impotence;
- Re-integration: adaptation to new norms, development of biculturality.

(Scudamore 2011).

3.3.7 PDP Tutors/Advisors of Study

Where possible the school have utilised international academic and postgraduate staff to address language barriers. These staff members are made highly visible at the welcome week and are a valuable part of the process. Using international staff as dedicated tutors/advisors of study is a simple yet effective approach, and means that the students know that any issues can be explained in their native language, thus eliminating anxiety. The SCCE staff scored highly in the survey for their friendliness and approachability. Indeed many of us have firsthand experience of being “a stranger in a strange land”.

Most of our international students are high academic achievers. One interesting point to note is in the issue of disability services, student counselling and provision of support through the Learning Development Service. Recommendation of student services can be difficult to broach with high achievers. Some students may have undiagnosed or undisclosed learning difficulties or medical issues. Coping in a known environment is manageable but often being away from home intensifies problems.

Explaining the assessment procedure is vital as high achieving students may find that their scores drop due to a difference in the way that we apportion marks. Our marking schemes can cause alarm and anxiety (Carroll 2008). High achieving students may perceive any drop in their expected outcome as failure and this can lead to problems. Feedback and understanding the marking schemes can go a long way to alleviating fear. In my own experience one high achieving student showed alarm when a first class score was awarded. Her usual score was of in the high 90s. She was worried that a score in the high 80s would be a terrible blip on her academic record. I had to explain that the score was very high by our standards and that a first class mark was indeed just that a first class mark!

3.3.8 Learning more English/ English Language qualification

Of the returned surveys IELTS was the most common type of EL Qualification with 10 of the 16 students gaining a score ranging from 5.5 -7.

The next most common EL Qualification was TOEFL. Three students reported scores of 91 81 and 400 points.

And one student reported CET at Level 6 on the College English Test, better known as CET, a national English as a Foreign Language test in the People's Republic of China. The provision of a course in technical/scientific English was found on the survey to be very useful. The comments suggest that the outgoing students would advise future students to practise English well before coming to UK; however they found that conversational English is regional and often best learned *in situ* as the use of colloquialisms and the additional confusion of regional accents is best learned in lab. situations and social events.

I teach a mixed group of students in the lab environment and this year we started a bilingual (Chinese/English) lab dictionary list. The students would come and clarify the names of the different basic lab equipment and I would write down the English equivalent beside the Chinese. We soon realised that this was a useful resource for the students to help us and identify common laboratory equipment and materials which is especially useful in the laboratory teaching environment. We present this as a resource in the supplementary data and plan to make it available to our incoming Chinese students.

3.4.0 Life outside the classroom, integration and inclusivity.

Another point that was raised on the survey was life outside the classroom specifically socialising and integration of the international students with the home students. Some students wished that they could have spent more time socialising with home students.

It is often the case that East-Asian students do not wholly immerse themselves in social events; they almost feel guilty wasting time to have fun (Chuah 2010).

One of the ways to address this is by socialising through a club or society which can allow a student to attain benefit to their studies as well as socialising. From a social point of view ChemSoc (our student chemical society) is keen to become more active in the school induction/welcome events and they want to encourage the international students to get involved in ChemSoc.

“ChemSoc aim to "socialise through chemistry" and provide mechanisms to engage the schools and the general public with chemistry” (ChemSoc president 2011).

In the coming year ChemSoc will have an official web page on the QUB societies website. In recognition and because of the large Chinese student base, ChemSoc plans to make the website available in both English and Chinese and is looking into the provision of a web based translator. ChemSoc has also opened up a place on the student committee for an

international representative to advise on how to merge cultures to the advantage of all.

Utilising student societies is a method of allowing cultures to mix through their area of study. This may encourage international students to get involved and start to build global networks. This can be further encouraged by the event organisers applying thought to cultural differences when organising socialising events. Simple things like making sure that everyone is invited and giving some thought to cultural and religious diversity are important. Social events should be of different kinds (Hyland et al 2008). Attention could be paid to venues, finding neutral spaces for events/lectures/talks that do not solely involve a drinking establishment. (Haigh 2002, 2008) makes the point that:

“internationalisation training for staff often addresses the wrong group: 'the international student'. He argues that international students are already adept at working in unfamiliar culturally diverse environments whilst home students are novices”.

3.5.0 Employability and next steps.

Our international students on secondment from ECUST returned to China after spending 1 year of study with us. All eligible students are invited to an introduction to postgraduate opportunities which occurs in February. Students are invited to discuss projects with staff members and are encouraged to apply before leaving.

4. Conclusions:

What we have learned is that good communication is vital for international exchange programmes in order to deliver what the students need to excel. A strong induction programme and continuous communication through the academic year has been vital. Responding to student feedback, developing course choices and the provision of a dedicated language and report writing course was invaluable to the students. The use of integrated small group teaching and laboratory sessions had a positive outcome in a number of different ways not least in student integration with the QUB students.

The introduction of a follow up session outlining relevant information from the initial induction session may be beneficial. A good time to include it would be after the Christmas break as a period of settling in has occurred by then and students may feel more comfortable and confident in discussing their experiences. Students could use the session to revisit topics perhaps with a student led Q&A session. Furthermore it would be a good opportunity to flag up the available student support/welfare provision before the preparation for exams and the submission of project reports.

Overall from survey the students had a very positive time and much fun was had during informal laboratory discussions. Topics of interest ranged from cookery, music, and dance to colloquial English. Of particular interest to the Chinese and Malaysian students were baking bread and cakes and the engineering of snow people during the cold weather of winter 2010.

What we appear to be doing well from student feedback: Delivery of our laboratory teaching and research projects, the friendliness and approachability of staff and the delivery of small group teaching. Focus for continued improvement will be in the introduction of study skills

and the Introduction of pre lab skills courses for the L3 intake. This has worked well for our L1 students, enhancing independent learning and practical skills.

Figure 2. Some staff, students, (home international and Erasmus) in the preparation of a Christmas “chemistree”



This year we have had another exciting year of internationalisation. Some of our students have returned as researchers and more new faces have joined us and become familiar characters. We had no snow but instead built a Christmas “Chemistree” for Christmas, Figure 2.

“Personal, intimate, empathic. Three words that characterise effective intercultural encounters, three words that can help us to be core players in the process of fostering sensitive learning and teaching in a multicultural higher education landscape”. (Trahar 2007) (Ellis & Bochner, 2000).

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<http://www.qub.ac.uk/home/ProspectiveStudents/InternationalStudents/>

<http://www.qub.ac.uk/directorates/AcademicStudentAffairs/InternationalStudentSupport/>

Higher Education academy (HEA) web resources:

http://www.heacademy.ac.uk/resources/detail/internationalisation/ISL_Independent_Learning

[http://www.heacademy.ac.uk/ourwork/teachingandlearning/internationalisation/
studentlifecycle](http://www.heacademy.ac.uk/ourwork/teachingandlearning/internationalisation/studentlifecycle)

<http://www.heacademy.ac.uk/internationalisation>

Staff: Informal discussions with colleagues

ChemSoc: Informal discussion