

The World Today: a space for disorientation, self-reflection and re-orientation towards a future ripe for transformation.

Dr Elizabeth Hauke

Submitted in fulfilment of Med, Imperial College London, June 2016

I declare that the work contained herein is my own, that the work has not been submitted elsewhere for an award and that where other sources have been used, they have been acknowledged.

Contents

Acknowledgements	3
Abstract.....	4
The World Tomorrow	5
Introduction	5
Educating students today to tackle the problems of tomorrow	8
Global Challenges.....	10
The World Today	11
What happens here?	16
Walk me through the plan, one more time.....	16
It's nothing until it's written down.....	18
Protecting the student experience.....	20
It's time to show and tell.....	22
Welcome to The World Today	25
Getting started	25
I'm maths, you're chemistry.....	29
Follow-up contact.....	34
Taking the lead	36
Frustration in collaboration.....	40
Pride, transition and falling short.....	43
Earning the rights to claim membership of tribe Imperial	46
Concluding Remarks	52
Identity and Transformation	52
Critical Being and the Creation of Futures	53
The Future of Today	54
References	55
Appendix 1: Initial Learning Reflection Worksheet	60
Appendix 2: Final Learning Reflection Worksheet.....	63

Acknowledgements

Many thanks to all the staff in the Educational Development Unit at Imperial College for their support during this process. Special thanks to my supervisor, Dr Martyn Kingsbury, for his enduring patience and willingness to help me take risks and then rein in the results.

I am also very grateful for the support of my lead tutor Dr Ali Mozaffari, who took the lead in the student assessment during this course so that I could maintain an ethical separation between my roles as teacher, researcher and assessor.

I would like to thank all the students – those in this cohort, and those that have gone before – who have been so instrumental in the design and delivery of this course.

Lastly, I would like to thank my husband for all the hours of listening to me trying to make sense of my ideas, the days of supporting me while I try to write, giving me space to actually write and then dealing with the endless worrying about what I had finally written.

Abstract

The World Today provides first year undergraduate science and engineering students with the opportunity to grapple with the big issues facing society. The learning environment is designed to challenge the students work independently and to develop an authentic engagement with the world and global challenges. This learning experience is unlike their core studies at Imperial College, and the aim of this study was to identify how the students engage with and make sense of this course. Further, the research aimed to refer to existing frameworks that have been designed to help inform educating students for the problems of an unknown future, such as Kelly's (2008) graduate visions and Barnett's (1997) critical being.

An ethnographic approach was selected to allow participant observation of the course. The course typically progresses by a process of action-observation-action – whereby, during each session the students are observed, and the subsequent session is designed to maximise the learning of the students and to provide additional support, activity and challenge where it is most needed. It was hoped that this approach would therefore allow the rich data to be collected, that arose as a natural consequence of the learning experience rather than being constructed in response to interview questions or other intervention.

Analysis of the data revealed it to be rich and although many themes were identified for possible exploration, the themes of identity and transformation were selected for presentation in this work.

When reflecting on the expression of identity in the behaviour and actions of the students it became apparent that the students are grappling not with a single sense of identity, but with multiple, often competing identities. Some students maintained multiple separate identities throughout the course, while others demonstrated evidence of beginning to integrate the different elements of their identity and bring all these elements to bear on their work. In one instance, a student struggled to move away from a traditional view of learning as being led by the teacher, and in the absence of an authoritarian lead in her work, took on that role herself.

For most students, the course presented an element of disorientation, and this seemed to generate a lot of awareness for the potential for transformation and there was much evidence that the students' self-reflection became more accurate and nuanced during the course. However, most students did not move through a transformative process, but rather appeared to lay the groundwork for doing so in the future.

The observations explored here highlighted the individual approach of different students to engaging with and succeeding in the face of such a challenging learning environment. Although the proposed frameworks of Kelly (2008) and Barnett (1997) might be a valuable starting point for designing such a learning initiative, they did not prove informative when reviewing each student's progress. It seemed unnecessarily reductive to 'tick off' their progress against a checklist and it is proposed that an alternative, more imaginative way to capture and engender this development is needed.

The World Tomorrow

Introduction

The nerves of the first session. New year, new class, new lecture theatre. Will anyone turn up? Will we be too few in this enormous room? Looking through the porthole reveals a class still in progress. A harried lecturer accelerating to complete his class. And here in the corridor, a sea of students. Passing by. On their way to another class.

Another worried look through the porthole. Questions being answered, some unrest. Students packing up, preparing to leave. Turning back to the corridor, relief. Out of the swirling mass, some students are emerging stationary at the edges. Waiting. They must be for this class. I approach the nearest trio.

EH “Hello, are you waiting for a Horizons class here?”

Trio of girls “Yes, we’re doing The World Tomorrow.”

EH “The World Tomorrow? Do you mean The World Today?”

Trio of girls “No, we’re not doing that course, we’re doing The World Tomorrow”

EH “Are you sure? I’m the lecturer for The World Today and there isn’t a course called The World Tomorrow. It’s The World Today.”

Trio of girls “No, we didn’t sign up for that. We’re definitely here for The World Tomorrow. You must have got the name wrong.”

EH “But I designed the course and wrote the name. It’s definitely The World Today.”

Trio of girls “We wouldn’t have signed up for that. We want to do the course that’s called The World Tomorrow.”

There is no such course.

EH “Well, welcome then. Look, the last class is leaving, let’s make our way into the lecture theatre now.”

Conversation with students prior to the first class

Every October around two and a half thousand new science and engineering students commence their undergraduate study at Imperial College, many of them hoping to make a real difference to the future of our world by tackling one of many pressing global issues. Their minds are fixed on the future – the future professionals they will become and the

expertise they need to acquire to get there. The journey will be hard. These handpicked students are top achievers from around the UK and across the globe, and their undergraduate education will test and exploit their ability to quickly learn immense volumes of information and to understand and apply complex concepts. They are aware of the reputation of Imperial College – the workload will be high, the requirements of students uncompromising and the assessment protocol intense.

Students quickly accommodate to the demands placed upon them, and typically develop strong disciplinary identities within weeks of commencing study. Perhaps initially overwhelmed by the volume of material they are required to familiarize themselves with, they adopt common learning strategies to maximize their success in assessments, tests and later exams. Students display extraordinary economy of effort – continually weighing up the effort required for each perceived reward or element of learning. They tend to look for the ‘quick wins’ and often reject learning experiences that challenge them in new or unexpected ways. They often demand their learning be delivered in a steady flow of pre-prepared and pre-validated expertise – they defer absolutely to the wisdom of the teacher and resist tasks that require them to develop their own ideas. And perhaps unsurprisingly given their disciplinary focus, they over-value the technical aspects of any problem and tend to seek ‘objective’ facts over ‘subjective’ nuances.

Although renowned for the technical ability of its graduates, the College is aware that the intense and highly focused learning experience afforded by the established science and engineering curricula might not offer adequate opportunities for students to develop interpersonal and higher level thinking and problem solving skills. For this reason, Imperial College offers all undergraduate students a range of optional study modules in languages, humanities and global issues as part of a programme called Imperial Horizons. Launched in 2012 it encourages a broader outlook and the development of a range of generic skills in the graduate population. The programme is organized into four fields of study – Languages; Science, Culture and Society; Business and Professional Skills; and Global Challenges. All students have a free choice of modules, and can build a diverse portfolio of modules over their undergraduate study. First year modules are short non-credit courses, while in the second, third and fourth year the courses are longer and may be integrated for degree credit or taken as additional study for extra-credit. All course modules appear on the degree transcript.

The imperative for such a programme at a technical institution like Imperial College could be understood from multiple perspectives - including learning, assessment and broader institutional aspirations. Let’s start by considering the learning that typically takes place in disciplines such as the sciences and engineering. Biglan’s (1973) classification of disciplines into a framework of hard and soft, pure and applied helps us to see that the range of subjects studied at Imperial College fall firmly into the hard pure and hard applied areas. This characterizes the learning experience by elucidating the types of knowledge that need to be acquired, the learning skills that are necessary for this acquisition and the style of assessment that is most likely to be employed. In a further analysis of this framework, Neumann, Parry and Becher (2002) describe hard pure knowledge as having a ‘cumulative, atomistic structure, concerned with universals, simplification and a quantitative emphasis’. Hard applied knowledge is concerned with using a similar underlying knowledge base, but

with an emphasis on mastery of the physical environment. In both cases, the end products of disciplinary enquiry tend to be technical. The learning tends to be linear and hierarchical, and there is a requirement for uncritical acceptance of a large amount of information before true disciplinary awareness can be developed, with acknowledgement of the permeability, relativity and uncertainty of that knowledge (Bernstein, 1972). This is in contrast to soft pure and applied disciplines, in which the opposite pattern is seen, with students being encouraged to develop critical perspectives at the outset (Lattuca & Stark, 1994).

Assessment methods might be a valuable tool for unpacking implicit educational values within a discipline (Neumann, Parry and Becher, 2002). If these are examined for science and engineering subjects, we see focused examination demanding retention and regurgitation of specific facts or blocks of knowledge, and the application of this knowledge being tested with defined and limited case examples, and with a fixed and logical approach to problem solving being privileged (Warren Piper, Nulty and O'Grady, 1996). In order to succeed in such a discipline, students must have a 'retentive memory for facts, coupled with an ability to solve logically structured problems and, in many cases, an adeptness in quantitative calculation' (Neumann, Parry and Becher, 2002). In addition, their writing is assessed for qualities such as clarity and objective statement of fact rather than argument or expression of uncertainty or complexity.

This might suggest that the student population of Imperial College are likely to be learning in a linear fashion, accumulating facts into a body of knowledge that represents the foundations of their chosen discipline. As an undergraduate there are likely to be limited opportunities for critical thinking, expression of personal opinion and exploration of uncertainty and complexity. But the question is – does this matter? Surely if the aim is to produce disciplinarians, then adhering to and developing disciplinary competence is the most important part of a higher education. However, is it really ever the case that the sole purpose of for example, a physics undergraduate degree, is to produce a physicist? Is it a realistic expectation that all students studying this subject will emerge and continue their education as disciplinary specialists? And does it serve society to produce innumerable disciplinary specialists? This is where curricular ideologies and an examination of institutional aspirations can inform our understanding a little further.

Schiro (2013) describes four ideologies that might provide the focus for and influence the development of curricula. Many other such classifications have been previously proposed (Eisner, 1974; McNeil, 1977; Fernstmacher and Soltis, 1992; Posner, 1992; Zeichner, 1993; Schubert, 1996; Ellis, 2004; Kliebard, 2004), but Schiro's (2013) descriptors are particularly helpful for exploring the educational interests relevant to an Imperial context. In setting out these ideologies, Schiro (2013) was elucidating the way that within education 'particular groups carry cultural impulses to dominate rival ideologies and control aspects of their culture' (p.9). In other words, Schiro was highlighting divisions and competing interests within education. However, I think it can be helpful to use this framework to highlight a variety of educational aspirations without necessarily seeing them as competing. Indeed, the four ideologies might work together to describe a full and rounded educational offering.

The 'scholar academic' (Schiro, 2013: p15) ideology describes an education whose purpose is to induct the learner into an academic discipline. This is very much what we were

exploring above in our discussion of the characteristics of a science or engineering disciplinary education – educating a learner from within and to remain within the values and approaches of a single discipline. This aligns somewhat with Biglan’s (1973) *pure* type of discipline. The second ideology is that of ‘social efficiency’ (Schiro, 2013: p57) – that is an education tasked with producing the expertise and workers to maintain our society. In the Imperial context we might recognize this ideology as informing the education of engineers and medics. These disciplines are clearly aligned with Biglan’s (1973) *applied* categorization. However, it is important to recognize that they are subject not only to the values and materials of the discipline, but also to the rigours of external accreditors and assessors, with some determinations regarding curriculum content originating outside the institution.

The third ideology is the ‘learner-centered’ (Schiro, 2013: p99) approach to curriculum. This might be seen as a curriculum that is designed to actualize the full potential of each student, albeit perhaps, within their discipline, but also maybe beyond it. Here we see the first hint that a full and rich higher education might reach beyond the disciplines. This supports the introduction of a programme such as Imperial Horizons, giving students learning experiences from a range of disciplinary areas such as the humanities and languages to cater to their wider interests and skills. Finally, we have the fourth ideology – ‘social reconstruction’ (Schiro, 2013: p151). Education in this vein aims to produce graduates who are able to solve the issues of society, or even the grand challenges facing our civilization. This is a powerful prospect and yet a highly complex and perhaps even contentious aim.

Using these ideological standpoints as a way to bring together a range of diverse objectives, might enable us to establish a holistic approach to higher education. This is not without difficulty – a range of actors from across the institution would be required to collaborate in terms of curriculum development, and creating space for these different ideals to be explored. The Imperial Horizons programme offers such a space, and is a valuable ‘commodity’ in the sense that it can be used to deliver a range of additional opportunities to the student population. If we imagine that the first two ideological positions are being delivered in core degree studies, and that the third is addressed via the Imperial Horizons programme, that leaves the fourth and arguably most challenging ideal to explore further.

Educating students today to tackle the problems of tomorrow

‘Naming and labelling are a natural human instinct, a universal and fundamental human activity essential to understanding the world. But when we put a label on something, we tend both to reflect our own prejudices and follow what appears to us to be natural, albeit, unwritten rules. In other words, we project our own limitations as well as the narrow confines of our culture and society onto the subject that we label. [...] That is why I think the label we append to the study of futures must consciously be open, pluralistic and emphasise a diversity of perspectives.’ (Sardar, 2010: p182)

The Imperial Horizons programme was launched as an adjunct to disciplinary study, providing an element of breadth to complement the depth implicit in the delivery of core degree studies. One might imagine that the ideals of educating with a view to social reconstruction could also be addressed via the notion of breadth of education - the broader the educational experience, ideally including the development of critical thinking skills and

an interdisciplinary approach to learning and problem solving, the better equipped graduates would be to tackle global issues.

Imperial Horizons does offer students educational experiences from a range of disciplinary origins. These additional learning opportunities are tailored to provide students with the chance to develop complementary working processes and skills. Flexibility and adaptability of graduates to a variety of working environments, including team working and the ability to innovate and solve new and challenging problems are often captured in the education-to-workplace rhetoric as *transferable* or *generic* skills (Tennant, 1999). Indeed, amongst the Imperial Graduate Attributes, many such skills are listed (Imperial College, n.d.). However, it could be argued that the role of higher education in providing graduates equipped to solve global issues (in other words, education for Schiro's 'social reconstruction' (2013: p151)) is about more than a tick list of skills, and as eluded to previously, remains a contested area. Solving the grand challenges of civilization also implies the creation of sustainable futures, and this is where the waters become a little more muddied. The idea of educating for an, as yet, unknown future is tricky. So, if a movement away from a skills based agenda and towards a futures-based approach is needed, but what might that be?

Imperial Horizons is attempting to explore this idea of educating for unknown futures through a new area of study called Global Challenges. The subject matter of this field of study focusses on addressing the big issues facing civilization, both now and in the future. However, it does this by subverting the traditional constraints of a higher education curriculum – focusing on the student and their engagement with ideas rather than the ideas themselves.

Patricia Kelly (2008) has worked some way towards unpacking this idea of creating graduates who can positively contribute to solving the problems of our present, thereby securing a sustainable future for civilization. Influenced by the second Crick report focusing on post-16 education (Crick, 2000), and the further work of Taylor and Johnston (2001) and Annette (2005), Kelly developed three "graduate visions" (2008: p11). The first she calls the "globally portable" graduate or "Homo economicus" (Kelly, 2008: p11). This graduate has developed leadership, team working, and communication skills, and along with depth of experience brings creativity to their work. This is the most closely aligned to the transferable or generic skills agenda, often cited as preparing graduates for the future (Tennant, 1999). A development of this is the "globally competent" graduate, or "Homo globalis" (Kelly, 2008: p12.). In addition to the skills of the globally portable graduate, there is evidence of perceptual understanding, a capacity for personal growth, an ability to develop personal relationships and to act as a cultural mediator. Here we see consideration of the 'other' becoming more prominent. Finally, Kelly describes the "wise global citizen" or "Globo sapiens" (Kelly, 2008: p.13). In addition to all of the above, this graduate is also more explicitly empathic to the needs of others, is globally conscious and able to contemplate changes to their own way of life. They are capable of trans-generational thinking and of "critical being" (Barnett, 1997: p102-115). They are focused on working for a sustainable future.

While these graduate visions may be helpful in informing curriculum development, I find some aspects a little troubling. The visions are obviously sequentially superior, with the wise

global citizen being the most advanced graduate. However, the labelling of them with the pseudo-species categorization introduces a whole range of connotation that I do not think is helpful, such as metaphors of evolution and definition of sub(standard)-species. Viewing the three visions as a series of milestone competencies towards the ideal of the wise global citizen is preferable. However, in fighting the reductive nature of closed disciplinary study and skills agendas, Kelly is in danger of reducing her noble vision to just such a checklist. The key competencies in the highest level of graduate relate to an increasing importance being placed on self-awareness and an empathic connection with others. These could be reduced to the somewhat tangible level of a 'skill'. Barnett, though, would argue that this level of criticality and engagement is not a skill that one can develop, but rather a condition of being that one can practice (1997).

Further, Barnett (2004) would question the very notion of the 'future' as a determinable concept for which we can prepare. Rather, he argues that by its very nature, the future is unknown, and cannot be prepared for. Therefore, encouraging and supporting a level of criticality that resides at the level of being rather than doing, is essential to leave graduates in a state ready to recognize and adapt to the unknown. Inayatullah (2007) neatly summarizes the history of our thinking about the future – moving from early attempts to grapple with the unknown found in astrology, to contemporary approaches of planning and forecasting. He argues that this current model of assessing the future is too short-sighted, limited in scope and politically motivated. Rather, he argues, we should be approaching our survival with a "futures" (Inayatullah, 2007: p2) approach, that would enable us *create* rather than *predict* the future.

Global Challenges

"It is a great experience. It allows me to search for things that are outside of my degree. I can work with people from different backgrounds and share the workload so it enhances my cooperation skills and how to communicate with each other effectively. It triggers my interest to the world we live in and makes me care more about the current issues."

Chao - Excerpt from Learning Reflection

The Global Challenges field of the Imperial Horizons programme uses thematic study of 'global challenges' to help prepare students for creating sustainable futures. There are eight courses modules over four years of undergraduate study that provide a spiral curriculum (Bruner, 1960) to increasingly engage the students with the values of a 'critical being' (Barnett, 1997) as further elucidated in Table 1 below. The Global Challenges courses fulfil a set of core values, that define the experience of learning on such a course, and identify the aims of such an experience – namely to foster an appreciation of interdisciplinary study, to develop the confidence to learn independently, to develop an authentic, realistic and evidence-based approach to the world and global challenges, and to develop the necessary collaborative and communication skills to create, innovate and impact the world around them. The courses embrace Kelly's (2004) notion of a 'process-based curriculum' with continuous assessment and an emphasis on good academic and non-academic working practices, but actually take this a step further towards a fully emancipated (Rancière, 1991) partnership (Brundett and Silcock, 2002) or even praxis curriculum (Grundy, 1987).

Table 1: Levels, domains and forms of critical being (Barnett, 1997: p103)

<i>Levels of Criticality</i>	<i>Domains</i>		
	<i>Knowledge</i>	<i>Self</i>	<i>World</i>
4. Transformatory critique	Knowledge critique	Reconstruction of self	Critique-in-action (collective reconstruction of world)
3. Refashioning of traditions	Critical thought (malleable traditions of thought)	Development of self within traditions	Mutual understanding and development of traditions
2. Reflexivity	Critical thinking (reflection on one's own understanding)	Self-reflection (reflection on one's own projects)	Reflective practice ('metacompetence', 'adaptability', 'flexibility')
1. Critical skills	Discipline-specific critical thinking skills	Self-monitoring to given standards and norms	Problem-solving (means-end instrumentalism)
<i>Forms of criticality</i>	<i>Critical reason</i>	<i>Critical self-reflection</i>	<i>Critical action</i>

Broadly speaking, the courses move from a global perspective in the first year (with students working collaboratively to explore the most pressing global issues of today and evaluate potential solutions), to a local perspective (with students working to improve the life and wellbeing of individuals within a choice of two specific communities) and finally towards an application-based and futures model (where students take learning from specific instances in history to evaluate current policy and create visions for the future).

The World Today

“Well, we’re finding out about different global challenges around the world. We’re all working in different groups, and each group chose their own global challenge to research. We’re making wikis in our groups and every week we can look at all the wikis of the other groups and leave them questions about their global challenges ... it’s hard answering the questions for your group though. On the wiki we can all contribute things, and then we can go back and work on it ... when we all work together we have lots of ideas and we put them all together on there ... but we always start together like this ... we always do something all together first. Right now we’re talking about what uncertainty means, and we’re making definitions for uncertainty, conspiracy and controversy. Later we’ll go in our groups and so we’ll think about uncertainty and controversy for gender equality, that’s our wiki ... that’s what we’re working on with Mary our tutor.”

Jenny, describing how the course works to a class observer in week 4

The courses are designed to provide a solid framework of methods and milestones that the students use to structure their learning. In our first year course *The World Today*, there is no pre-defined content and each week the students must negotiate their own learning objectives, develop their own research questions and research and build their own knowledge base. To establish a greater level of collaborative learning, we ensure that there is no duplication of work across the cohort of up to 100 students. We establish this working practice by asking students to define individual perspectives or areas of study for their own small teams, negotiated with the wider cohort. The students then have the responsibility to produce a learning resource (a wiki) on their chosen area, whilst also accessing the work of other teams, and contributing with questions or suggestions.

The learning experience can be quite intense, with a high cognitive load (Sweller, 1988). Beginning with defining their own learning objectives, the students must also determine what questions to ask, how they should research the topic, how to structure their new knowledge base, how much time to spend on their work, how much written or other work to produce and when to complete the work. As all the courses are optional and students are permitted to join or leave the classes throughout the first half of each course, the students also need to work with fluctuating group sizes. They need to determine safe and responsible places to work and demonstrate that they are displaying good practices with regards their own working habits and towards their team. Of course, a lot of these choices are contained within the overall framework of the course, but in practice these remain active choices that the students must make. A critical part of the learning experience is creating a safe space where students can take risks and make mistakes. The challenge of defining your own learning experience is not an easy one, and it would be unreasonable to expect all the decisions made to be wise or sensible. Continual reflection and reflexive working is essential. Additionally, the students are challenged to make the learning experience individual and authentic to themselves and their team mates. This begins with identifying their interests, experiences and expertise and considering how these could be applied or exploited during the course. The students also complete an initial learning assessment to identify their particular strengths and weaknesses and to select a particular skill that they wish to focus on during the course. This will be self and tutor marked at the end of the course with a final learning assessment and reflection.

For the course leader, the course proceeds by a process of close observation and action research. Each new session is commenced with reflections on what has occurred during the preceding week and contains prompts and activities to direct the students towards reflection and refinement of their decisions and working process. These must be adapted or created *de novo* with each iteration of the course, to respond to the direct interests and learning needs of each specific cohort. Collaborative learning is enacted across all participants in the class – including the course leader and the student mentors. Each undergraduate team has a PhD student mentor, who has an interest but no specific expertise in global issues. The mentors have advanced enquiry and learning skills, and through their collaborative working with the students are able to model these practices.

‘Although [higher education] can justifiably take pride in its capacity to develop the students’ ability to manipulate the material world [...], it has paid relatively little attention to the students’ “inner” development, the sphere of values and beliefs, emotional maturity, moral development, spirituality and self-understanding’ (Astin and Astin, 2006)

The World Today attempts to provide a space to attend to just this development, prioritizing authenticity of learning and experience above all else. Ashton (2010: p.10) describes a state of ‘authentic being in the world’ as maintaining a sense of awareness of ourselves and others and the relationships in which we engage, making choices and acting to maintain our authenticity (even when there is a risk that this might make us visible or vulnerable amongst our peers), taking responsibility for our decisions to act, speak, feel, believe and value, and expressing care for others and the world around us. Kreber (2013) described these same values in her work on authenticity in teaching and learning. A similar but simpler set of guiding principles can be found in Baxter Magolda’s earlier work (1999) on self-authorship:

- ‘Validating the student as knower’ (p.65)
- ‘Situating learning in the student’s own experience’ (p.68)
- ‘Learning as mutually constructing meaning’ (p.70).

We actively work to promote these principles, encouraging students to value their own knowledge and experience, to have confidence in their growing understanding of the world around them and to accept multiplicity, variability and uncertainty in knowledge. We take care not to present any facts, information or knowledge as a ‘fait accompli’, but allow the students to make individual journeys towards ‘knowing’, guided by gentle questions, encouragement and reassurance. Apart from structuring the course and maintaining some sense of discipline and whole group coherence, the course leader does not take the traditional authoritative position of ‘knower’ in the classroom.

There have been three iterations of this course, and three of the accompanying and similarly structured first year course, which have been successful in terms of student achievement in the assessment. Formal student feedback is captured via an anonymous online questionnaire, but this tends to generate numerical feedback that would be more suited to a traditional lecture course (for example asking: ‘On a scale of 1-5 how engaging were the lectures?’ – not very appropriate for a course with no lectures), and very few free text statements. Despite this, the numerical scores are generally good.

Withdrawal data is another source of information about the course. Given the optional nature of these courses, and the fact that students can walk away from the course at any point, there is a very fine line between providing a challenging learning experience (with some, perhaps, necessary discomfort) and alienating the students with an unusual experience with which they do not have the desire or capacity to engage. The course has an established 25-30% drop out rate from enrolled starters and there are three main reasons stated for this in the compulsory withdrawal questionnaire. Most commonly students cite overwhelming workload as the reason for withdrawing from the course, and secondly students report finding the course contrary to their expectation or not to their taste. These same reasons are reported across all Imperial Horizons courses, in some cases more so than for Global Challenges. Finally, students report that they are not ready to engage in such a

challenging experience. Of note, many of this last group of students do return and enrol on another Global Challenges course at a later stage of study.

However, looking at these data sources as a way to evaluate this course fails to really generate any insight that is meaningful in terms of the core values of the Global Challenges field of study. We know that students achieve good outcomes in the assessment. We know that post-hoc, the students report finding value in the course. They comment on the difference between this experience and their core studies, and they refer to the difficulties of managing their own learning when directly asked. What we don't know is how the students make sense of this learning experience for themselves. We don't know what happens to them as they grapple with the challenging learning environment. We don't know how this impacts their approach to themselves and each other. That is the focus of this observational research – to find out what happens during the learning experience of The World Today.

As the course progresses by a process of observation-based action research, that is integral to the learning and teaching experiences of both students and educators, it was important to find a way to evaluate the course that maintained this authentic and coherent approach. Whilst questionnaires or interviews might have generated much interesting data and insight, this would have been an alien and external process to the normal progression of the course. Additionally, the constructed nature of these 'interactions' might have actually altered the students' engagement with this, or subsequent courses. In trying to assess the students' engagement with the learning environment, explicit questioning about the nature of that engagement might have prompted the students to act or learn in a different manner. For this reason, an ethnographic observation has been selected as the research method. This enhanced form of observation can be conducted without any specific intervention, and without constructing or altering the engagement of the students with either the course or the researcher. This minimizes the impact of the research and provides some additional authenticity to the data, which originates directly within the learning and teaching experience.

As a qualitative method, observation and specifically ethnographic observation are noted for their low reliability and validity. Reliability is the extent to which the research could be repeated by another researcher, producing the same results, whereas validity examines how representative the observation is of the actual event being observed (Hammersley, 1990). These issues are inherent in the choice of research method, but I still feel that given the nature of the teaching and learning experience, ethnographic observation will produce data that is 'closer' to the actual experience than could be obtained by another method. Observer bias is clearly important here, and I will take care to minimize this where possible, and declare it where it is not.

Taking a phenomenological ethnographic approach, the research is looking to understand what happens to the students on this course. In keeping with a phenomenological philosophy (Savin-Baden and Howell Major, 2012), I will be seeking to understand what happens from the perspective of the students. Ethnographic work calls for a grounded theory (Glaser and Strauss, 1967) approach, and although I want to approach the data as openly as possible, I think that in this context, it is appropriate to limit the scope somewhat

and to take a slightly more directed approach to the data. However, I do want to refrain from attempting to answer a more pragmatic or specific research question.

Therefore, the overarching research question is 'how do first year undergraduate science and engineering students make sense of the learning experience offered in The World Today'? In order to analyse how students are 'making sense' of the experience, attention will be paid to how the students reflect on their own and others' participation in the course. Further, I will consider whether there is any evidence of 'critical being' (Barnett, 1997) or 'self-authorship' (Baxter Magolda, 1999) evidenced in the students' approach.

What happens here?

Walk me through the plan, one more time...

Deep breath. Step out. The click of the lock signals the beginning. There's no turning back now. I'm on my way. Leaving the safety of my office and walking across campus to the first session of the new year. About to meet my new students. About to begin my research.

What if this doesn't work, what if I can't do it? Teach and research at the same time. What if it compromises the student experience?

I can do it. I do it all the time. I'm always observing the students. It's part of the teaching. It's part of what I do every day.

But this is different. I'm not doing this for the benefit of the students, as part of the teaching. I'm doing it for my own research. On top of the teaching.

But it's the same method, it's just observation. Hang on, am I actually doing any research? Have I missed something here?

No. I am doing research. Real research. Using a method I have practiced, but for a different purpose. I'm teaching and I'm researching. Side by side.

I'm teaching the students. I'm observing the students to inform the teaching. I'm also using that observation as data. Secondly.

Firstly, I'm teaching, teaching generates data. Secondly, I'm analysing that data.

But the data will only be as good as my observation. And my observation will be completely coloured by how I feel about the teaching, what I'm trying to achieve, what I hope for with the students. I can't remove myself from the equation, I can only keep this in mind, try to be critical.

Can I achieve any separation at all? I've removed myself from the tutor briefings, finding them alternative support. I've removed myself from all elements of the student assessment. I can't do any more than that.

Oh God. Maybe I should have done interviews. Or focus groups. Or surveys.

No. Any of those would skew the learning experience for the students. They would be thinking about what or how they are supposed to be learning not because of the learning itself, but because of the questions asked. That is counter-intuitive. I only want to know what emerges organically from the learning experience itself.

This is the best way. This will capture some of the how, what and why of the situation as it unfolds. It will be the most authentic measure of this that I can achieve in practice.

But what if I give something away? Influence the students without meaning to. What if I influence the students by trying to observe something? What if I make something happen, just by looking for it to observe it?

I have to take a step back. But I can be open with the students. We always talk about the observation of ourselves and each other that is a natural part of this teaching and learning experience. The fact of my observation will be no different to usual. The result of my observation is all that will change.

Reflections while walking to the first class

This research aims to capture the impact of this innovative learning design on the student participants. The World Today creates a challenging and rich environment that inevitably impacts the tutors and course leader as well, but the focus here will be on the students. How do they engage with the learning experience? Ethnographic observational study will not yield a direct insight to their thinking or learning experience, but it will capture what the students express; how they act and react both individually and collectively.

The observation will include both direct observation of the students working, and indirect observation of their online collaboration and work on their wikis, and their submitted initial and final learning reflections (example worksheets in Appendices 1 and 2). The direct observation will include elements of whole cohort observation (looking at levels of engagement, participation and collaboration), observation of study teams (looking more specifically at interactions and collaborative behavior) and focused observations of key individuals. Individual students will be selected for focused observation if they demonstrate engagement with the unusual learning environment. This might take the form of expressing confidence or anxiety, boredom or disinterest, or excitement or active participation. It is the aim that 6-10 students will be selected for close observation. The pattern and opportunity for observation is summarized in Table 2.

Table 2: Patterns and Opportunities for Observation

Indirect Observation	Initial Learning Reflection	Online learning environment (work on the wikis)						Final Learning Reflection
Direct Observation	Whole Cohort							Whole Cohort
	Study Teams							Study Teams
	Individuals							Individuals
Week	1	2	3	4	5	6	7	8
Session Content	Introductory Week	Assessing the Current Situation	Measuring on a Global Scale	Uncertainty, Controversy and Conspiracy	Predicting the Future	Assessment Preparation	Assessment Week	Building the Big Picture

The course normally progresses by a pattern of observation and ongoing collaborative curriculum revision, with learning activities being adapted on a week by week basis to best suit the needs of the particular student cohort. This level of observation is routinely discussed with the students at the start of the course. For this reason, the observation in itself is a routine part of the teaching and learning experience rather than a novel process

introduced in the service of the research. The observation will be documented in teaching notes following each class, as is my usual teaching practice.

Review of these notes will differ from the teaching process with an increased depth and level of reflection, and ethnographic focus. Ideally, for the purposes of ethnographic observation, the field notes would be documented contemporaneously. However, it is my normal practice to make teaching notes following the session and from experience I have found that making even passing notes while leading the session leads to a shift in focus from my engagement with the students, which is a critical element of the learning and teaching process in this class. Therefore, the notes will not be contemporaneous but will be made immediately following the teaching so as not to impact the learning experience of the students.

It's nothing until it's written down

There is a considerable overlap here between the normal observational practice found in this teaching and learning endeavor, and the research being undertaken. It is arguably difficult therefore to pin down the methods being used – one could say that this is merely action research or one could cite this as a piece of ethnographic work. Generally speaking though, action research is a pragmatically oriented cyclical process, designed to find a solution to a specific problem or to improve the way that problems are routinely addressed (Denscombe, 2010). It is a tool that can be applied in practice whether or not it is documented or published as a piece of research.

Ethnography, on the other hand, looks to describe and understand the lives of people from a specific culture through the observations of an embedded culturally naïve researcher (Denscombe, 2010). It is a rather more open-ended phenomenological approach, and in this case is being used to attempt to develop an understanding of how students act and react in a specific challenging situation. The researcher (course leader) is embedded in a real world situation (learning environment), observing the experience (learning approach) of a culturally 'other' community (students). Unlike action research though, an ethnography cannot exist in practice alone. In fact, an ethnography does not exist *until* it is written down (Humphreys and Watson, 2009).

This rather simple definition of ethnography rather belies the extreme complexity and variation in the use of the term. It is widely recognized that the term ethnography does not mean the same thing to all researchers (Humphreys and Watson, 2009). However, there are some common details that are worth exploring a little to further inform this work.

Although an ethnography is 'a written account of the cultural life of a social group, organization or community, which may focus on a particular aspect of life in that setting' (Watson, 2008: p90), it is critical that the ethnography presents its focus of analysis within the 'cultural whole' (Baszanger and Dodier, 2004: p13). Clearly the scope of this dissertation limits the opportunity to write at great length about the wider cultural setting in which the students live and work, but as in the work of Becker, Geer, Hughes and Strauss (1961) and their study of medical students, the wider context is represented here through additional

vignettes that provide context rather than specific points for analysis, and through descriptive commentary.

The nature of the observer is also of note here. In the origins of ethnography, the observer had little or no prior experience of the culture under observation and remained separated from the community to varying degrees. From the rather disparagingly labelled 'armchair' (Van Maanan, 2011) and 'verandah' (Kuper, 1977) anthropologists to the fully embedded participant observer (Watson, 2008) the nature and complexity of observation has varied both with intent and time. Ethnography as an anthropological tool is historically tied to the colonial era and an investigation of the lives of those as culturally 'other' as to be thought of as primitive, native or at the very least, non-Western (Ryen and Silverman, 2000). However, as a sociological method, ethnography has been used to study local cultures, such as Becker's 1953 study of drug users. Initiated by the work of the Chicago school, looking at local urban populations, underdog occupations and deviant social roles (Deegan, 2001), this sociological use of ethnography is much more likely to include participant observation, as in this study. Although participant observation might be considered to produce authentic and closely witnessed observation, it is not unproblematic. It allows for covert observation – which can be of benefit if the fact of being observed would be likely to distort the behavior of the observed, or if it might cause harm or distress to the observed to know about the observation. However, this raises ethical issues about consent to participate in being observed. Hammersley and Atkinson (2007) additionally point to the difficulty of 'suspending one's preconceptions' (p. 81) and the notion of having to 'fight familiarity' (p. 81) in order to observe what is truly occurring (Delamont and Atkinson, 1995). Becker (1971) contextualizes this to educational research and describes the 'tremendous effort of will and imagination to stop seeing only the things that are conventionally 'there' to be seen' (p. 10). However, this familiarity may provide some benefit to the observation, as long as this familiarity too, is critically observed. As Mills (1959) writes about the intellectual craftsmanship of sociological research, 'you must learn to use your life experience in your intellectual work: continually examine and interpret it' (p. 196).

While we have considered here some specific concerns of the observation, we must not neglect those of the documentation. As already alluded to above, an ethnography is a written account. Specifically, the writing of an ethnography is composed of passages of 'thick description' (Geertz, 1973). Ryle (2009) provides an enduring example that helps define what is meant by thick description. He describes a boy with a facial twitch, resulting in the intermittent closure of one eye - an involuntary movement of a single eyelid. He then describes the knowing wink of another child. This too is the intermittent closure of one eye, the movement of a single eyelid. However, on this occasion, the movement is intentional and imbued with social meaning. A third child, seeing the first child's twitch or maybe the second child's wink, performs an exaggerated parody of this movement. Again in literal description, there is the intermittent closure of one eye caused by the movement of a single eyelid. However, the meaning of this gesture is markedly different to in the previous cases. Finally, he describes an earlier moment where the third child is standing in front of a mirror, performing this same gesture – on this occasion to rehearse and perfect the gesture. Each of these four moments could be captured by a literal description. However, something more is required to differentiate the social meaning and context of each, and this is referred to as thick description.

The value of thick description is immediately apparent in the above example. However, it must be noted that the thick description is formed of an interpretation of what has been observed. The role of 'truth' in ethnography has long been debated on two counts. Firstly, it might be necessary to fictionalize some elements of an ethnography, for example to protect the identity of an observed individual. Secondly, the reliance on interpretation means that many factors other than the events being described may influence the way these events are described (for example, preconceptions or previous life experience of the observer). Humphreys and Watson (2009) describe the essential truth of an ethnography as lying with processes rather than details of fact. It is the documentation of how things happen and how things work that must be preserved as truth. Other elements of the descriptions are less critical. Joas (1993) describes a philosophical test for truth in an ethnographic account – if an individual were to enter the situation or culture being described, would they cope if their actions were informed only by reading the ethnography in question, rather than any other account. Another measure is to assess the account in correspondence terms – how much does the description correspond with what was observed (Humphreys and Watson, 2009).

Finally, these elements of truth, description and reporting are brought together in Humphreys and Watson's (2009) typology of ethnographic writing. They describe 'plain ethnography' (2009: p. 43) which is akin to a witness statement, or in other words a plain description of observed activity. Next, they describe an 'enhanced ethnography' (2009: p. 43), where the account is written using the techniques of the novelist. This account contains the witnessed activity, but might also include scene setting, dialogue, the inclusion of the author as an actor in the situation, emotions and inferred context and some awareness of the varying 'perspectives and stories of the subjects' (2009: p. 43). Then follows the 'semi-fictionalised ethnography' (2009: p. 43) which contains a restructuring of events from one or more occurrences into a single narrative description. This can be used to protect identities or to present sensitive data. Finally, there is a 'fictionalised ethnography' (2009: p.43) where a representative account is drawn from prior life experiences of the author, but where the account does not describe any actual event that has occurred. In this work, an enhanced ethnography will be presented.

Protecting the student experience

'Through marginality, in social position and perspective, it is possible to construct an account of the culture under investigation that both understands it from within and captures it as external to, and independent of, the researcher' (Hammersley and Atkinson, 2007 : p9)

The students already receive explicit information about the educational and developmental use of anonymised observation within the course. Their participation in this observation forms part of their learning and facilitates further course development. However, for the purposes of this work, they will not be told of the additional secondary research purpose of my observations of the class.

The secondary use of the normal in-class observation material will not be explicitly discussed with the students for two reasons. Firstly, the primary learning outcome of the

course is for students to develop their own approach to tackling real world complexity and to reflect on how this impacts their ideas about learning and education. Informing students that this process is being observed for research purposes might cause the students to alter their approach and therefore not make a natural progression through the course, impacting and ultimately harming their learning experience. Some students experience high levels of learning anxiety due to the nature of the work, which from experience, I know can be effectively managed within the learning environment and are sometimes a necessary part of this type of learning. Not explicitly referring to the secondary research aims of the observation in this instance, will allow these students to continue to express these anxieties, receive support and make effective progress without fear of judgement or shame. If the research were revealed, it could harm the relationship that I develop with the students to help them through this experience. This will also allow me to continue to join student discussion groups without highlighting the fact that teaching notes and reflections on the interaction might be used for research purposes. This will help to protect the students who are being observed from additional 'pressure' that might be generated by their explicit inclusion in the research.

Secondly, as the methods and the data are part of the existing teaching process, the participants will should not have an experience that differs from normal participation in this class. It would therefore be overly cautious to project my concerns about their participation into a consenting process that would lead the students to believe that something other than normal teaching was about to occur.

The existing observational data is not anonymised for teaching purposes, but will be anonymised with the use of gender and ethnically sensitive pseudonyms for use in this research. The key to the anonymisation process will be stored securely and separately from both the original data and the anonymised version.

As I will be the course leader for the class that I will be observing there is an explicit issue with the involved power relations. I am in a position of authority within the class and need to be careful both to reflect on this during my observation and to be mindful of how this might impact the students' learning and wellbeing during observation. My position as course lead is unavoidable in this circumstance, and does give me the benefit of the additional insight and access required to perform the proposed ethnographic observation without introducing any 'extra' distraction to the class. My presence is expected and the only additional research activity (data analysis) happens outside the class. To mitigate the power issues, I will not be revealing my status as researcher to the students during the study period, and this 'researcher' status will in any case be indistinguishable from my normal role as course leader, and from the normal teaching and learning activity of the class.

Although the observation would happen whether or not the research was taking place, my perspective and thus the focus of the observation may be affected by my knowledge of the research. To minimise the potential influence this might have, I have excused myself from all marking and assessment for this cohort and from delivering the tutor training and weekly briefing sessions. As the course leader with responsibility for course development and the 'success' of my course, I recognise that I will inevitably bring a degree of bias to the

observations and subsequent analysis because of my past experiences and connections with the course. However, although my prior knowledge, experience and attachment to this course might introduce bias, it will also add depth and nuance to my observations.

As the proposed research is essentially invisibly embedded within normal teaching and course development from the students' (and other tutors') perspective and I have removed myself from assessment, the potential for educational disadvantage is minimal. In fact, it could be expected that the secondary use of observation in this research may benefit students by allowing more nuanced and tailored support to be delivered to them both during this course, and potentially in subsequent courses with me. There will also be some benefit to the tutoring team in terms of informing their approach to the students, and to general course development which may benefit future students.

While it is not a focus of this research, it is not unusual during a course of this nature (outside core degree studies, and a course that invites high levels of personal reflection) for students to express anxieties, concerns and to use the course as a forum to 'report' or seek advice about issues such as bullying, mental health problems and unhappiness. Should this happen, the student will be appropriately supported using the full range of established support services within the College.

It's time to show and tell

'The tension between participant and analytic perspectives is highlighted if we think of the ethnographer as simultaneously concerned to make the strange familiar, so as to *understand* it, and to make the familiar strange, so as to avoid *misunderstanding* it.'
(Hammersley and Atkinson, 2007: p.231)

During the eight weeks of this ethnographic observation, a large amount of data was collected. The observations included:

- 12 hours of direct observation (weeks 1-5 and week 8)
 - approximately six hours of whole cohort observation (with focus on key individuals)
 - approximately six hours of study team observation (with focus on key individuals)
- 32 hours of indirect observation of students working individually and collaboratively online on their wikis
- Post-hoc review of initial and final learning reflections and completed wikis

The student cohort for this course consisted of approximately 110 students at the start of term. There was some confusion about the actual number of enrolled students as 'extra' students had been added to this course due to other courses being over-subscribed. This also led to a larger drop-out rate than usual. We completed the course with 51 students. Data analysis was only carried out on students from that final group of 51. The students worked in small study teams and we had eleven study teams, each with a PhD student mentor.

The additional data examined consisted of:

- 11 study team wikis and an additional 'question and answer' wiki where students posed questions to other study teams

- the wikis record each student contribution, including their additions and deletions to each page with time and date information
- 51 initial learning reflections
- 51 final learning reflections
- 7 mentimeter question and answer sets generated during class discussions
- Email communications from students

It is of note that the student wikis could both be indirectly observed contemporaneously (in other words I could watch students working on the wikis remotely but in real time from my computer terminal) and interrogated post-hoc. The post-hoc interrogation yielded data both about the construction of the wikis and the nature of collaborative practice that went into constructing them (by analysing how students added to, deleted and modified each other's work, as well as leaving notes for each other in the text that were later deleted) and about the nature and quality of the final piece of work.

The key individual students selected for focussed observation included:

- Chao
- Jenny
- Chen
- Jésus
- Lois
- Gloria
- David

Chao and Chen came to my attention as they both expressed a sense of disinterest in the nature of the learning experience, but remained engaged throughout. Jenny was selected for focussed observation as she was highly self-motivated and expressed pride in her work and that of her peers. She often volunteered to speak to class visitors and was able to clearly articulate the core values of the course. Jésus was selected because he kept bringing his self-perceived failings to the attention of myself and his peers. Lois appeared to be quite an aggressive member of the cohort, but this seemed to be an expression of her desire to collaborate and attempts to lead her study team. Lois had a big impact on Gloria from the same study team, who was incredibly unconfident at the start of the course. Both students were selected and were observed together. Finally David was selected for focussed observation due to the self-acknowledged chaotic nature of his engagement with the course.

As Hammersley and Atkinson (2007) describe, data analysis in ethnography is not a distinct phase that occurs after the collection of data. Rather it is an interactive process throughout research design, data collection and review. Ideally there should be a 'dialectical interaction' (p.159) between the data collection and data analysis. In practice this means that the researcher might need to withdraw from the observation for periods of analysis, and then recommence the observation with a range of ideas that emerge from the initial observation in mind that could be followed up. Given the limitations of this research project, this would not have been possible. However, by selecting individual students for focussed observation I was allowing my earliest observations to inform my further observation.

In collecting and examining the data, it is not possible to maintain an objective stance. My role as researcher is shaped by my co-roles as teacher, course leader, curriculum designer and even educational innovator. I have a lot invested in the success of this course, and its, hopefully, positive impact on the students. Additionally, the outcomes of this research will not be neutral. The findings might influence the way that this course is delivered in the future or even the further use of this

pedagogical design. However, 'naturalism proposes that through marginality in social position and perspective, it is possible to construct an account of the culture under investigation that both understands it from within and captures it as external to, and independent of, the researcher' (Hammersley and Atkinson, 2007: p.9). Clearly, in trying to understand the experience of the students from their own perspective, my position as educator is marginal. This will allow that critical sense of difference that will enable the observations to represent the students' experiences, without being unduly mediated by my own hopes and expectations.

The bulk of the data analysis has been completed following the observation period. Initially, the entire data set was reviewed with note being made of interesting or informative elements of the data. These were then more closely interrogated using an open coding process. From this a number of interesting themes were identified, including:

- Identity
- Nature of disciplinarity
- Transformation and transformative learning
- Authenticity in learning
- Social constructivism and collaborative learning
- Group work and group development
- Cognitive load and learning strategies

The entire data set was then interrogated further for additional instances of phenomena relevant to the above themes or categories. Individual themes were then explored further with axial coding, to bring additional layers of meaning to the individual instances (Strauss and Corbin, 1990). This began to allow links to be made within the data and for triangulation between different data types relating to the same instance or wider phenomena. For example, an observed conversation between students about a wiki entry could be followed up with examination of that wiki entry. Additionally, evidence could be sought in the learning reflections of those students to see whether this incident was recalled and reflected on by the student at a later stage in the course. Further, wikis of other student teams could also be examined to see whether this phenomenon was restricted to just these individual students, or whether it was occurring in other student teams too. This was an iterative process whereby 'ideas are used to make sense of the data, and data are used to change our ideas' (Hammersley and Atkinson, 2007: p.159).

Finally, themes that told the most complete 'story' were selected for inclusion in this research. The themes selected were identity and transformation. These two themes could be identified in multiple pieces of data, including both direct and indirect observation of multiple students and incidences. This cross referencing and triangulation through the data set suggests some measure of validity in the findings.

As a participant observer, and due to the highly embedded nature of this observation, my voice as both teacher and researcher has been retained in the thick descriptions. I feel that this transparency honours the reality of the observation, and allows the reader to make their own judgements about the impact of my status and role on the observations. Additionally, as the audience for this research is other educators, I feel that this helps to acknowledge that this is a teacher's observation of the students' perspectives, rather than to present the observations as being the actual perspectives of the students. I hope that it also allows the reader to imagine themselves in my shoes in the class, trying to understand and make sense of what is being observed. To me, that feels closer to 'truth' than trying to invite the reader directly into the position of the students.

To honour the nature of thick description, the amount of data included in this write-up has been limited to allow for richness and fullness of description.

Welcome to The World Today

Getting started

Time to begin. It's just after four in the afternoon. The room is full, there's anticipation in the air. This is better than I was imagining. The gentle buzz of students introducing themselves to new friends, catching up with friends they last saw at Fresher's fair and the relaxed chatter of people united by their core studies, hall of residence or other established acquaintance. The tutors are still standing, nervous in their anticipation of what is to come. Acting up to the demands of their briefing, assiduously demonstrating their potential competence in the face of the unknown.

It's a raked lecture theatre, large, with three blocks of seating. The lectern is placed in the right hand corner, standing at the front facing the room. There are three blocks of seating, widest in the middle block. The room is wide, probably as wide as it is deep. It's a long walk across the front of the room, and bizarrely, there is a long set of trestle tables with white table cloths in the open space in front of the biggest white board I have ever seen.

I've been waiting behind the lectern for the incoming flow of students to tail off, for everyone to find a seat, for those first interactions to take place. But now it is time. Stepping out from the behind the lectern, I take the first deep breath of the course and call the room to attention.

EH: Hello, let's make a start. So welcome to The World Today, I hope that's the class you're all expecting. My name is Elizabeth Hauke and I am the field leader for the Global Challenges courses within Imperial Horizons and I will be the course leader for this autumn term course...

As I continue with the commencement patter of describing the course, introducing the tutors, setting up the way the sessions will run with the mix of whole group discussion and small study group collaboration, my attention is drawn to a late-comer entering the room. A female student, everything in her body language suggesting that she does not want to be noticed. She just wants to sit down. I see a tutor move towards her, I think to welcome her, and I relax and continue. But welcoming is not what I see. As she slips into an open seat near the back of the room, the tutor stands her back up, and rather officiously marches her to the front of the room to sit in the front row. Other students notice, they are watching this unfold. I want to intervene, but if I stop talking, I will draw more attention to her. I let it go.

As I continue, I realise that the tutor was responding to an earlier request to make sure that the students don't all sit near the back of the room. With a bubbling anxiety that there might be a poor turn out for this session, and worried about the size of the room, I had asked for the tutors to encourage the students to sit together, and to fill the room from the front. This turned out not to be necessary at all. The students have filled the lecture theatre,

with just a few seats vacant, evenly spread throughout the room. This is my fault. I continue the patter, making a note to give feedback to the tutors that they can relax on this.

The student sits, back ramrod straight, staring straight ahead. Not at me, not at the projector screen. Just blankly, straight ahead. I feel her discomfort. I carry on.

Observation from the start of the first session

This student who entered late and was subjected to some rather harsh re-seating by a well-intentioned tutor was Chen. At this point, I have no doubt that Chen would have liked nothing better than to sit un-noticed. There followed an ice-breaker activity, where the students had to imagine themselves forced to flee their lives as refugees. They shared with the person sitting next to them the three biggest concerns they would have, walking away from their lives, and the three belongings they would take with them. Everyone participated except Chen. Her neighbor tried valiantly to involve her, but she somehow managed to stay in splendid isolation, staring rigidly ahead.

Before discussing the course in too much detail, we had some smart phone voting and questions using Mentimeter. The first question was 'how is learning about your global challenge going to be different to learning about your degree subject?'. There was a slightly conversational aspect to the responses, as the students could respond multiple times, and we left the question live while we were discussing it. For example, someone responded:

“less maths”

and then another person added

“more maths”.

I also forgot to employ the profanity filter, so there were some responses that had to be scrolled past quickly. However, there were also some very helpful, detailed suggestions relating to breadth of study in this course, rather than depth in the degree subjects, and relating also to synthesizing your own understanding here rather than reciting memorized information to pass degree assignments.

The students seemed to appreciate that this is an applied, problem solving, thematic course of study and were able to differentiate this from the nature of their home disciplines. They appeared to contrast the learning they expected on the course with what they already perceived as the 'atomistic and cumulative' (Becher and Trowler, 2001: p. 36) learning they anticipated necessary to progress in their degree studies. In fact, in the discussion that ensued, the students identified a number of terms that Becher and Trowler (2001) relate to study of the humanities as being what they would expect from the course, including being holistic, relating to specific examples, value- and opinion-laden, no agreement over the correct answer or solution and varying definitions of what would be considered 'knowledge'. There didn't seem to be any great resistance to working in these ways, and if anything, the opportunity for something different to the experience of learning science and, particularly, maths seemed to be welcome.

Some other briefer comments are listed below:

More energy	More flexible	Up to date
More group work	Different skills	No set syllabus
Broader	Less restricted	Relates to people
Multidisciplinary	No subjects or lectures	Exploration
Not scientific	No objective facts	Lots of different answers
Related to our daily life	Can take the initiative	Less structured
My course is endless lectures	Go at our own pace	Teamwork
Pooling our knowledge	Less technical	Think critically
Improve lots of different skills	Learn how to co-operate	Learn how to discuss things
Global challenge= personal+professional experience Degree= just professional		

A couple of comments related to skills, and this was something that was reflected in the discussion. Over the last couple of years, I think that we have become better at discussing skills. Whereas we used to engender mass eye-rolling in the students, who seemed to equate 'skills' with remedial study, we have now established a dialogue that values the idea of developing and enhancing skills. Sennett (2012) describes the origins of the term 'skill', noting that although Aristotle described skill as *techné* – or the technique of making something happen, Islamic philosopher Ibn Khaldun described the fundamental nature of a skill as requiring craftsmanship to practice. The idea of 'craftsmanship' is a very helpful notion and values the nature of a skill, alluding to an aesthetic element that is absent from a more mechanistic view. We were certainly able to entertain this view in our discussion.

I particularly liked the final comment above, that equated study on this course as an opportunity for integration of the personal and professional. Sennett (2012) writes 'the self is a composite of sentiments, affiliations and behaviours which seldom fit neatly together; any call for tribal unity will reduce this personal complexity' (p. 4). The student seems to reflect that in order to conform to the 'tribe' of their discipline, there is no room for the personal. I hope that they feel this as a loss, and find ways to compensate, to keep developing their own person and to value their own complexity.

One further comment that caught my attention was:

“It involves more independent learning, no guidelines, which is a good thing, but not very secure to me, as I don't know what to expect.”

As noted earlier, this course presents a high cognitive load (Sweller, 1998) to students. This is largely intentional, as one of the principal aims of the course is to promote independent learning and the attendant processes such as defining your own research question, scheduling your own work, managing your workload and knowing how much work to do, and how much depth and detail is necessary. These choices and decisions are hard, but the course provides a safe, supported space to practice making them. To balance the cognitive load, the volume of learning required has been reduced, and the assessment uses learning that is documented during the course rather than requiring the creation of specific additional products. We openly acknowledge the difficulties that the students face coping with these aspects of the course, but do not believe that this cognitive burden should be reduced.

‘Modern society is producing a new character type. This is the sort of person bent on reducing anxieties which differences can inspire [...] The person's goal is to avoid arousal, to feel as little stimulated [...] as possible.’ (Sennett, 2012: p. 8)

Sennett may be right in this assertion – in fact I suggested something similar earlier (that students aim to streamline their learning, balancing effort with learning reward), but some of these comments suggest that students actually want to be aroused and engaged. It might be scary for some, off-putting for others, but the comments relating to energy, breadth, exploration and the monotony of degree study suggest that there is room for something different.

Students may also be reflecting an awareness of the relative satisfaction generated by different learning experiences. Students may be willing to engage with a ‘harder’ learning experience, or to negotiate some cognitive dissonance (Aronson, 1995) for the chance of greater fulfilment.

There were also a number of comments relating to the stress of degree study:

“My global challenge won't cause me a mental breakdown”
“Less stress, I hope ☺”
“Less tears.”

These comments were worrying, especially given that they were made during the first week of our course, which is only the students' third week of university study. What is happening in those first three weeks to prompt these comments?

Interestingly, when reviewing the final learning reflections, it appears that a lot of these expectations were fulfilled. Taking the text of the final learning reflections and using a word cloud generator that represents more commonly used words in a bigger font size and less commonly used in a smaller font size, here is a visual representation of all the statements.



Word cloud generated from raw text of the final learning assessments of all students

I'm maths, you're chemistry...

After a group discussion about real-world problem solving and the nature of collaboration, we explored ways that the students could contribute to their groups. We discussed the value of their disciplinary knowledge and enthusiasm, but also the other experiences, interests and ideas that they as individuals could contribute. The idea of this discussion is to help encourage contributions of any type from every student, building on Baxter Magolda's (1999) 'validating the student as knower' principle. It aims to help the students think of themselves as unique, valuable and knowledgeable beyond their disciplinary experiences in their degree study.

EH: Fantastic, so we, as a big team of over 100 students, 11 tutors and ... me – we're powerful. We have so much amazing experience, enthusiasm and knowledge – and that's on top of what we're all studying in our degrees. Let's see if we can make this fit with some of the 'technical' words that you might hear about different ways of working. Because you're going to hear these words used, and I don't want you to feel limited by them – here or anywhere else. Let's start of by exploring the word multidisciplinary. Has anyone heard that before? What does it mean about the way that you might work with others?

There's a murmur of recognition, some whispered comments between students. The moment sits, a pregnant pause maybe, but alive with ideas. I'm out front and center, between those trestle tables and the front row of seats. I keep my gaze moving across the students, not letting it linger on anyone for more than a moment. Finding the chatty students, the engaged students and the heavy blank gaze of those not interested, or maybe exhausted by this long day of classes.

EH: OK, what do we think? Any ideas - remember there are no silly answers, I want to hear any ideas that you have, otherwise we'll be stuck just listening to me, and none of us want that...

A smattering of hands tentatively raised. We've had some fairly robust rowdy discussion already, but this question seems to have brought out some formality in the students. No shouting out this time. No smart comments. But no sensible ones either. Is it the reminder of their other studies that has intimidated the students, or is it the suggestion that in this class there must be something more than just subject-oriented study?

The hands are all near the back, some on the far left and some in the middle. I wander over to the left block of seating and gesture for a female student with a raised hand to speak.

Julia: It's when people with different degrees work together. Like you said we'll all be in mixed teams, so that will be multidisciplinary.

EH: Fantastic, what a great definition. I love it. Let's see if we can make it even more detailed. We're going to talk about some other types of group work in a minute, so I want us to be as clear as we possibly can before we move on.

I turn back to the middle and invite a contribution from another girl near the centre back. This will be tricky. The most obvious thing has already been said. I don't know if anyone will be able to develop this further without the contrast of thinking about interdisciplinary or transdisciplinary working.

Elena: I think it's like this. If I'm learning about biology, then I might know something from biology that might help with the project. And my friend here is studying physics. So he might know something from physics that would help. We both contribute something we know and hopefully we make an amazing project and get a really good mark.

EH: Perfect. You guys are too good at this. Amazing. Right, so I think we need to see this in action.

I suddenly felt the need to move this from a discussion to a demonstration. I'd been talking over the front rows to the students in the back for a few minutes, so I took a step back and asking for a volunteer, let my eyes run over the first few rows. Most students immediately looked down or otherwise away from me, but Chen, sitting stiffly in the front row didn't

move. And so our eyes met. I smiled my most encouraging smile, but Chen's face didn't respond at all. But it was too late. I was committed.

EH: Hi, could you help me with this – it'll be totally painless, I just need a bit of help to figure out what multidisciplinary working would 'look' like. What's your name?

Chen: (through gritted teeth) Chen.

EH: Lovely. Chen, would you mind helping me?

And looking up around the whole group –

EH: Remember, participating in activities and discussions is really important in this class – so important in fact, that we give you marks for participation towards your final assessment. You might also choose to focus on a participation skill for your self-assessment – that's great, and these little opportunities give you a chance to try things out, take a risk, give it a go and show your tutors what you can do.

Back to Chen.

EH: So, Chen, if you could stand with me, we're going to figure out how we could work together in a multidisciplinary way.

To the class.

EH: The rest of you, start thinking about what interdisciplinary work might be. That will be the next question.

So, I'm going to be maths. And what subject are you studying Chen?

Silence. Chen, facing the other students, staring resolutely ahead.

EH: Chen, what are you studying here at Imperial?

Encouraging nod. Chen turns to face me, and with a fixed glare, responds.

Chen: (again through gritted teeth) Chemistry.

EH: Brilliant. I love chemistry. So I'm maths, and you're...

Pause. Again, I nod encouragingly, and Chen responds, this time with the slightest hint of a smile trying to break through, and a big theatrical eye roll.

Chen: Chemistry.

EH: I'm maths, you're chemistry, and with my maths and your chemistry, we're going to work together on a problem. But

you're going to stick with what you know from chemistry, and I'm going to stick with my maths.

To class.

EH: I don't even know why I chose maths. I'm a doctor. I should have said medicine. I'm medicine, but it's too late now. I feel committed to being maths. It just shows, it's tough being out here in front of all you guys. It makes me do crazy things like say I'm maths. Chen, we're doing well, but I'm not sure if we can carry on alone. We need more help with this.

Chen stuck with me as I opened up the discussion again to talk about interdisciplinary and transdisciplinary working. Another student, Jonny, from the other end of the front row joined the demonstration, adding a bit of mechanical engineering to the mix. Finally, I wanted to move the discussion back from these technical and somewhat artificial terms to describe the kind of working and collaboration that we would hope to see in this class.

EH: So. The three of us are working together. What can we bring to this project. Maths ...

Looking to Chen. Cue another exaggerated eye roll.

Chen Chemistry...

Turn to Jonny on my other side.

Jonny: Mechanical engineering.

EH: Great start. Jonny, what else might you bring - what interests do you have outside mechanical engineering, what experiences have you had in life that might add something to our highly fictional and indeterminate project?

Jonny: I like playing football.

EH: Great, I'll match your football with running. Football is great though, you might have different types of team working skills and strategic thinking. I don't know what running brings me, maybe perseverance. What about any other projects that you've worked on?

Jonny: I did a geography project about the Amazon and native tribes. Does that count?

EH: That so counts. Fantastic, that might add something really amazing to our imaginary project. What about you Chen? What else could you add?

Chen: Chemistry.

EH: I think we have chemistry on the list. Anything else?

Chen fixed me with the same look as earlier. A little more smile in the eyes now.

Chen: Just chemistry.

EH: OK ... well ... I think we're getting the idea. We all have lots of different experiences, interests and skills that we can bring to our groups. Chen and Jonny, thank you, please take your seats. Chen will keep thinking about what else she can bring as well as chemistry...

We then moved into the next phase of the class, getting into mixed study groups, defining global challenges and picking and pitching for particular global challenges to study in each group for the rest of the course.

Observation from first session

In this first session, it seems that Chen experiences quite a few challenges to her identity. Gee (2000) describes four different ways that we can think about identity – as a state of nature (for example being a twin), as an institutional position (for example being a manager), as a discursive position (for being known as someone with a particular characteristic) and as an affiliation (for example membership of a professional body). For Chen we might consider these levels of identity as follows:

- 1) State of nature – being intelligent (if you consider intelligence a genetic trait)
- 2) Institutional position – student
- 3) Discursive position – known as hardworking and 'serious'
- 4) Affiliation – disciplinary membership of chemistry

Somewhat unintentionally, Chen is faced with an attack on each level of identity in turn. At the time, I felt terribly guilty about this, but as we shall see later, Chen recovers magnificently and develops in the face of these challenges.

Chen's status as a student is challenged when she is denied the unwritten right of every student to slip into a lecture theatre late, unchallenged, and to take a seat near the back. The tutor's over enthusiastic marshalling of Chen was potentially very shaming and embarrassing. Chen reacts to this challenge with defiant self-control, evidenced in her stiffened body language. There is also a little aggression in her response, which might be understood if we consider her identity as membership of the 'tribe' of students - 'tribalism couples solidarity with others like yourself, to aggression against those who differ' (Sennett, 2012: p. 3). In my identity as lecturer, I was definitely not a member of this 'tribe' and definitely felt the heat of Chen's response.

I then challenged Chen's intelligence and discursive identity of being 'serious' by involving her in a somewhat frivolous activity. Keeping the activity light-hearted and 'fun' might have seemed an attack on Chen's sense of duty to work hard, engage in serious study and to make the most of her studentship.

Finally, I challenged Chen's disciplinary identity, suggesting that in order to contribute successfully to this class, and potentially to create a sustainable future for civilization, her discipline (to which she has dedicated herself at this point in her studies) is not enough.

Thankfully, as this exchange developed, Chen was able to see some humour in the situation; or at least, she was able to humour me – they might not be the same thing.

On reflection, I think that Chen was able to tolerate this series of challenges due to a level of authenticity in the interactions taking place. Rogers (1983) humanistic approach to identifying the lecturer as a facilitator of learning identifies the qualities that need to be present to promote an authentic exchange and level of engagement:

- The facilitator needs to enter into a genuine relationship with the learner, not present a front or façade
- The learner needs to feel prized, accepted and trusted
- There needs to be an empathic understanding of the student's position

Although not explicitly articulated, I was certainly feeling empathic towards Chen throughout this encounter. Initially, I felt that I was making a mistake by selecting Chen to participate, and that every step I took during the activity made it worse. I actively felt that in the moment, and perhaps this was apparent to Chen. I certainly felt like she started to take pity on my plight in trying to involve her, and although she didn't go to any great lengths to help me make the most of the exchange, humour definitely entered the fray. It is possible that my persistence with Chen, and refusal to admonish her or not accept her responses made her feel accepted, and prompts to repeatedly include her monotone-laced 'chemistry' in the exchange allowed her a trusted position to continue contributing without being expected to perform differently or more. Finally, I think that I did make a genuine connection with her, despite the seemingly incongruous proceeding.

Follow-up contact

A few students bring themselves to my attention on a weekly basis as a way of entering in to some agreement to engage. It is as though they need to express a desire to grow, change or develop before they can begin. On this occasion, a few students managed this during the session, but the most notable example happened via email following the first session.

Hello Dr. Hauke,

First off, I would like to say that today's introduction to The World Today was very interesting. I really respect your ability to speak in front of large crowds quite easily and confidently, as that is something that I am developing for myself and I am sure I will get to exercise that in this course.

I am writing this e-mail because I noticed a misspelling in our group name on BlackBoard, "Platinum Propaganda". I know it is quite small and may be silly and I may be wasting your time with this e-mail, but I also wanted to

say what I did in the first paragraph. Also, I did not want to write this e-mail at 3 AM.

If it can be fixed, that would be great and would make my team mates and I happy, but if not, that is totally understandable.

I am looking forward to what I will get to develop with my teammates, tutor and others in this course!

Kind regards,
Jésus

P.S. Global Challenges: The World Today was my first choice.

Received by email at 10.12pm in the evening following the first class.

Jésus states that the purpose for sending the email is to request a spelling correction on the wiki. The wikis are student generated, and all students have full editing rights to their own wiki, so this request is a little nonsensical. The student acknowledges that requesting this change to be made by me might be 'wasting your time', but that he also wanted to write to me regarding the first paragraph of his email. This complements my public speaking and expresses his wish to work on his own public speaking. It also states his interest in the course. He goes on to say that he is looking forward to working with his team mates and group tutor.

There are two interesting 'inside jokes' in the email. The first is the comment that 'I did not want to write this email at 3am'. This is a response to one of the course rules, which forbids students from working on their wikis between 1am and 6am. I made quite a dramatic proclamation about this during the session. The second is in the post-script where he assures me that he enrolled on this course as his first choice. During the session it emerged that a lot of students had been shunted into my class due to oversubscription of language classes. With students making three choices for enrolment, sometimes students are allocated to their second or third choices in order to facilitate enrolment of all students. Many students were therefore there as a third choice option, and some had not selected this course as any of their choices. When this had emerged during the session, we had discussed it together as a factor that might challenge team cohesion as students might have differing levels of commitment to the course and some students may be more likely to withdraw from participation.

The email is designed to make an impression on me, and it certainly does. I am flattered and amused, but I also decide to keep an eye out for Jésus progress. I wondered if Jésus was expressing engagement with a transformative process, and was interested how this might proceed.

Mezirow (2000) described the process of transformative learning as having ten stages:

- 1 Disorienting dilemma
- 2 Self-examination

- 3 Critical assessment of assumptions
- 4 Recognition of the potential for transformation
- 5 Exploration of the options
- 6 Planning a course of action
- 7 Acquiring new skills and knowledge
- 8 Rehearsal of new roles
- 9 Building competence in new roles
- 10 Reintegration of new perspective

In the case of Jésus, I think that his approach to transformation is a little more complex than a sequential ten step process. He is expressing a desire to change, grow and transform, but he hasn't yet experienced a disorienting dilemma. It's as though he has sensed this opportunity, but not yet been drawn in to the process. He aspires to be something different and more, yet his path to achieving that hasn't presented him with necessity or discomfort. It will be interesting to see how he progresses during the rest of the course.

From general class discussion, it seemed that many of the students were engaging with the notion of transformation and appeared to be variably at stages 1-4. Many students had expressed discomfort or difficulty engaging with the nature of the class, and were already strategizing about how they might overcome this, or adapt their approach. They seemed to be explicit in their awareness of this and that far exceeded my expectation – both in terms of the potential of the course to provide this opportunity and in terms of the willingness of the students to engage with it.

Taking the lead

Lois: Come on, guys. We have to make a decision. Climate change will be really interesting. I'm very interested in it.

Gary: I'm not sure we're all interested in this topic. Maybe we should think about different global challenges.

Lois: We're already a week behind all the other groups. They've started working already, and we're still picking a global challenge. I didn't think it would be this hard. We should just do climate change.

Gary: But it won't take long to think about some other topics. We could just talk about it.

Lois: We need to make a decision, let's vote. Hands up if you want to do climate change.

There's a pause, then as Lois makes eye contact with each group member, they slowly raise their hands. Three students don't raise their hands, Gary and two other male students.

Lois: Great. That's decided then. Only, I've already done a project on climate change before.

- Gloria: Well, that's good. You can share what you've done before and it will give us a good start. That's what we're supposed to do, isn't it? Use our previous experience and things we already know about. We're supposed to use those things as a starting point.
- Lois: Well. I don't have any of my notes or anything. They're all at home.
- Gloria: But you could get them? Or you could just tell us what you remember?
- Lois: I don't want to go over the same things again. I think we should focus on the impact of climate change on humans.
- Gloria: But our other choices of global challenge were about the environment. Couldn't we look at the impact of climate change on the environment? Or on endangered species? Or different habitats?
- Gary: Or on natural resources? We could link it back to energy. That was something we were all interested in.
- Lois: No, we should definitely focus on the impact on humans. I think we've decided, haven't we? The impact of climate change on humans? Can someone write it on the wiki, because we've decided now.
- Gary: I think we should write 'to be confirmed' or we can write 'climate change', but then write 'to be confirmed' about the angle. I'm not sure if we've really decided.
- Lois: OK, but we have decided. You can write that, but we have decided. Who is going to add what for this week? We all have to put something on the wiki, who is going to add what?

The conversation continued in the same vein, with Lois taking a rather authoritarian lead, failing to hear what her team mates were saying. The wiki was created, and Gary labelled it 'Climate Change (exact topic to be decided)'.

The students left the class and within a couple of hours, the wiki had developed. Lois had deleted Gary's title, and added Climate Change and the Impact on Humans. She also added instructions written on the wiki in pink telling each team member what they needed to add and giving them a deadline. This did not arise out of the observed team working in class, but seemed to be a rather unilateral initiative implemented by Lois alone. No other team members contributed to the wiki that week.

Directly and indirectly observed team working during the second week of term.

I had felt very awkward observing Lois attempting to take the lead with her team, and seeing this develop online after the session. I wasn't sure if this was a student taking a risk and trying to take the lead, or a student who felt that this was the way a leader should behave. Later in the course, when challenged by her team a little more robustly, I observed her take a step back. She didn't let go of her idea, but instead worked on it in private, while collaborating with the rest of the group on their idea. Gloria facilitated this separation and worked with both the team and Lois on their separate ideas. At the end of the course, I looked at the final learning reflection to see whether she had commented on her interactions with her team.

“It has been good practice communicating to the group and this has improved my confidence in leading. Further, I have learned the importance of delegating different amounts of work to the groups abilities to ensure a happy workforce.”

Lois, excerpt from final learning reflection

Lois clearly regards herself as separate from her group, and in some ways responsible for them. She talks about communicating 'to' them rather than 'with' them, and refers to them as a workforce, who she is able to keep happy by moderating the amount of work that she gives to each member. She doesn't question her identity as team leader. This may in part be due to the structure of the course – asking the students to select a specific skill to focus on developing during the course. Lois picked 'leading a team' and clearly took this very seriously.

I wondered what impact her leadership style had on the rest of the group. They had settled into a rather quiet pattern of working remotely online, and I hadn't been able to observe any further interactions that had impacted their work.

In the final learning reflection of Gloria though, I found this interesting passage:

“I always used to be a really shy person and although I have gained more self-esteem in the last few years, there were still some things that scared me. After this course though, I got to experience speaking in front of people and being a group leader. It felt as if I was thrown in the deep end at first, but it really helped me to build on things I always found scary. It was so much fun getting to know so many wonderful people and work with them to produce a great piece of work. Independent research was the basis of the course and through this I was able to find out more about what is going on in the world and how serious some problems actually are. Thought it was great. ☺”

Gloria, excerpt from final learning reflection

Despite her shy start, Gloria seems to have found confidence in speaking in front of the group and taking on some leadership responsibility. Although I worried that Lois might have stifled the experience of the other students, there is evidence here that this was not the case. I think that Gloria came to see Lois as a role model. She certainly didn't lead in the same way as Lois, but I think that she was motivated by Lois' confidence.

However, on further reflection, I think that the 'leadership' aspect of this exchange and of the approaches of these two students is not the most informative avenue to explore. Sennett, (2012) writing about collaboration, says that the 'most important fact about hard cooperation is that it requires skill' and he defines this skill as 'dialogic' (p.6). By this he means that listening, responding tactfully, identifying areas of agreement, resolving disagreement without frustration and negotiating tricky discussion are critical to this type of cooperation. In contrast to a dialectic discussion, whereby differences are aired and a consensus is sought or synthesised, a dialogic discussion rests on the value of the differences explored. The key to this is the listening component, attending to the views of others with empathy rather than sympathy. It is not enough to come to know what someone else thinks or says, you must be willing to hear it and work with it. In solving wicked, global issues, Sen and Nussbaum (1993) state in their 'capability theory' that we have a greater ability for difficult, nuanced and yet effective cooperation than institutions allow us to achieve.

Lois is not able to engage in a dialogic process with her team. She is unable to tolerate and negotiate difference and seems to believe that limiting the choices of her team mates will enable them to work more 'happily'. She does not engage them as equals in debate, and by marginalising their roles to facilitate her vision of the work, she is able to manage her own anxiety in the face of these differences and potential disagreements. On the occasion where I observed her compromise and take a back seat, she appeared disengaged and unhappy with the result, but by continuing to work on a side project of her own, she achieved satisfaction in the work without her team.

Lois' behaviour with her team is quite authoritarian, and it seems as though this might be a response to her encountering a 'disorienting dilemma' (Mezirow, 2000), and assuming a very particular identity to help her navigate this situation. Friere (1970) talks about a concept that he calls 'banking education' (p.53). He is describing the traditional and commonplace style of education that reduces the roles of teacher and student to those of depositor and depository. He is arguing that this form of education is oppressive in that it denies the student the right to be the 'knower', and removes the possibility for dialogic discussion. This seems to be a direct contrast to the principles of Baxter Magolda (1999), where in promoting self-authorship, validating the student as knower is critical.

The learning experience in *The World Today* seems particularly challenging for Lois, as these roles of teacher as 'knower' and student as 'receiver of knowledge' are not played out in the classroom. I think that some students experience this as a void – perhaps due to their previous experiences of education being quite rigid, structured or even authoritarian. In this situation, we see Lois assuming the role of 'knower', but not as an equal with her peers. The authoritarian and controlling behaviour that she displays sets her apart, casting her in the role of 'teacher'. This allows the situation to feel less disorienting and uncertain, reinstituting some of the familiar structures that represent an educational experience to Lois.

It is also possible that this is reflection of the Imperial student 'tribal' identity. There is quite a strong sense that the student should be taught, and that the 'good' student works long

hours to learn what they are taught, and is rewarded by excelling in assessment. Here, Lois is not being 'taught' anything, the assessment feels uncertain, so to in order to excel, Lois steps up into a leadership role. In the face of uncertainty, Lois has used her rather fixed ideas and identity as a shield. She has manipulated the situation around her to allow her dichotomous view of education to work – she is either the authority or the passive recipient, but she has found no other way to approach the situation.

Gloria on the other hand, is able to tolerate difference, listen attentively and does respond to Lois empathically. She is able to learn and gain confidence from Lois, even though they work very differently. Gloria negotiates the team's frustration with Lois and is able to hold the wider team together even as the team workflow becomes fractured. Although Gloria seems shy and lacks confidence, she is displaying very advanced cooperation and team skills. Gloria seems to have a much less 'fixed' idea of herself, her education and of other people. She is able to adapt and begin to transform into a sophisticated team player. She certainly found the start of the course disorienting, but has quietly found the space to reflect, recognise her own potential for transformation and, I think, subconsciously, she has found a course of action that allows this to begin. Gloria has managed to remain open to this unusual learning experience, and has actively looked for new ways to negotiate the tricky situations that have arisen. She has been receptive to the actions of those around her, and found a way to build and strengthen her own identity as a learner and contributor. She is not contained within Lois' fixed dichotomy and is able to move forward as a result. Gloria's journey here is very personal to her and seems to represent some form of individuation (Jung, 1958), or individual experiential development (Alheit, 1992). Gloria is maximizing her potential and recognizing and exploiting her true value and ability as an individual.

Frustration in collaboration

In the interests of engineering ongoing class and group participation throughout the course, the students are asked to ensure that they complete two tasks each week. They must add something (there is no set description of what or how much) to their own wiki, and they must visit the wikis of other teams and leave them a question or comment. Most students contribute to their own wikis, but only about a third of students manage to complete the second task. It is an especially difficult process to get started, and we always take time to reflect on this and review successful examples at the start of each session.

After the second week, Lois (from the climate change team) had left a question for the team studying overpopulation. When reviewing the wikis mid-week, I noticed the below image posted in the wiki by Lois, directly below her question.

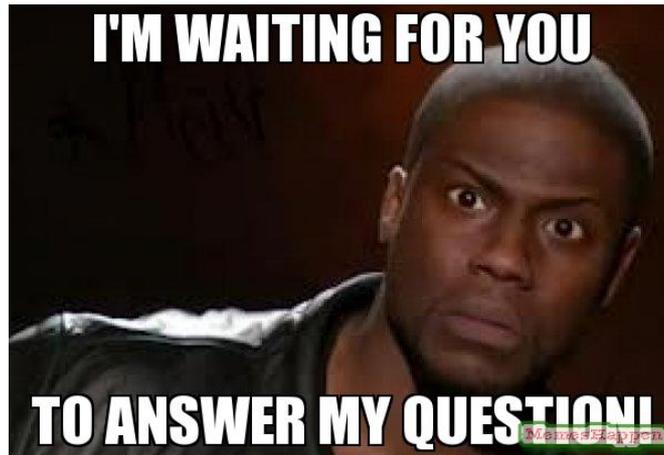


Image posted by Lois a couple of days after asking a question of another team and not receiving a response.

This seems to be an expression of her frustration that after going to the trouble of asking a question of another team, no one had yet responded. Answering these questions is one of the most difficult tasks during the course, and students generally take 1-2 weeks to write responses, so Lois was a little premature in her impatience.

Again, Lois is taking an authoritative stance, demanding an answer to her question. Limited by her dichotomous view of education and the positions or identities she expresses, she is once more forced into a somewhat aggressive position. However, the particular choice of image is perhaps an even more exaggerated form of this.

At the start of the next session, I projected the page with this post on it, to see what the general student response would be. I didn't want to shame Lois, but I thought peer review might be a more effective way to deal with the situation than a face to face confrontation. The projected image prompted a murmur of disquiet from the students, and we shared some understanding that although the intention had only been to chivvy along a response, that perhaps this stepped over the boundaries of courtesy. Lois seemed impassive during this exchange, but did not appear upset by it.

We have rules for leaving questions for other teams, such as that the student asking the question must introduce themselves before asking their question, and that the responder should thank the asker for the question before responding.

Global Hugs: Social Inequality

Created By [redacted] on Tuesday, 3 November 2015 11:16:27 o'clock GMT
Last Modified By [redacted] on Tuesday, 1 December 2015 17:31:28 o'clock GMT

Hi Global Hugs, it's Benjamin from The Solution. Do you think that financial inequality can be a useful tool by (through a capitalist system) efficiently distributing resources to prevent poverty, or is there a way of distributing resources that does not cause financial inequality?

Hi Benjamin, thanks for your Question! Financial inequality can be a useful tool to incentivise increased productivity so it is necessary within society. We don't want to completely get rid of it. However, there is a limit to this disparity. There should also be fairness within the system so two people doing the same labor should be rewarded equally. Today's disparity between countries in Africa and Europe or North-America for example does not serve any initiative creating purposes and needs to be reduced.

There are theoretical political and socio-economic models that try to achieve growth without creating financial inequality like socialism. However, history showed that such systems tend to break down after time if not strictly contained by the government.

Example of a question for the Global Hugs team and their answer on their wiki

These might seem like minor points, but 'rituals of civility, as small as 'please' and 'thank you' put abstract notions of mutual respect into practice' (Sennett, 2012: p. 5). After reminding the students about this, no more incidents occurred on the wiki.

In the weeks following this incident, Lois' modified her authoritarian instructions on the wiki. Initially, she had been writing subtitles with curt directions to individuals to complete research. After this session, she went back through each instruction and added 'please' to each one. Then a few days later, she modified the below example further, to add 'please share your research'.

Data assessment (II) (Version 12)

How we're measuring climate change: [redacted] **please share your research**

Habitability
[redacted]

Infrastructure
[redacted]

Resource Competition

Graph A: Temp anomaly (C) vs Year (1400-1800). Shows a shaded 'Little Ice Age' period from approximately 1400 to 1800. The temperature anomaly fluctuates between -0.15 and -0.45 C.

Graph B: Precipitation (mm) vs Year (1400-1800). Shows multiple lines representing different precipitation metrics, ranging from 0 to 75 mm.

Graph C: [Unlabeled variable] vs Year (1400-1800). Shows multiple lines representing different data series, ranging from 0 to 125.

Lois' team wiki from week four, with her amended instruction in red

When the student completed this segment of work, as prompted by Lois, she responded with a compliment.

Data assessment (II) (Version 17)

How we're measuring climate change [Thanks [redacted] looks amazing! @SquadGoals]

How is it possible to measure something? The problem of measurement is an old one, that gave history. One classic example is the measurement of distance. First 'rulers' invented to measure distance represented the length of an arm, usually the arm of the monarch. However, there was a problem, measurements had to be recalculated. This problem reached its maximum impact in feudal France over a strip of land enforced its own distance, resulting in massive confusion. During the French Revolution, the French government wanted a precise and objective way of measuring distance, and came up with the metre, which is the distance between the North Pole and the Equator. [1] Since then, more accurate and objective measurements have been invented, and other, more precise, ways of measuring weight will soon be invented.

Unfortunately, measuring climate change is difficult and subjective. Since it is a 'change', we would have a comparison of the world today and the world a few years ago. The problem is the measurement is too small, since climate indicators are not even close to constant, and if the time period is too big, it is not necessary for a measurement. Historic events, such as invasions, revolutions or natural disasters, have provided data that was not ample to start with. [2]



Lois' response when the student adds the text that she had requested to the wiki in week five

It is clear here that although I don't think Lois has shifted very far from her view of education as having two opposing positions or roles, she has modified her approach to interacting with her team. Indeed, if we think back to Lois' final learning reflection, she remarks that she had learned about delegating and had had good 'practice' at working with her team. This is evidence that although Lois didn't reflect beyond her own concept of her role within her team, or within this educational experience, she did reflect on how to inhabit this role more effectively.

Pride, transition and falling short

Midway through the course, I started the session with a sharing activity to highlight the value of our non-academic activities, our interactions with the world and our ability to benefit from taking risks – whether or not they end up working out. I put up an extraordinarily unflattering picture of myself at the finish line of my first ever marathon that I had run two days earlier. I talked a little about how hard this run had been, that I hadn't known beforehand whether or not I would be able to finish it, and the fact that even though I finished last, nearly an hour and a half after the second to last runner, that this had been worth doing. After asking the students to discuss their weekend activities in pairs, I asked if anyone would like to share something they had done at the weekend. Before I had even finished asking the question:

A hand shot up, straight in the air. It was Chen, now about half way back on the far left hand side of the lecture theatre, sitting with her study team. The movement caught my eye and I started walking over to that side of the room to invite her to contribute. She didn't flinch, her back, again, ramrod

straight, arm raised straight above her head, looking resolutely forwards, not towards me.

EH: Chen, what did you do this weekend?

Chen: I signed up to work in a soup kitchen, and then on Sunday I went and served soup.

EH: Wow, that's amazing. Had you done this before, or was it the first time?

Chen: It was the first time. I didn't know what it would be like. But I went and served soup.

EH: And what was it like? How did you find it?

Chen: Well, I served soup.

EH: Did you ... did you think it was worthwhile? Will you do it again?

Chen: Yes, I am glad I did this. I will probably do it again. It was different from studying.

EH: Fantastic, well I'm glad that you found it worthwhile and that you took a break from studying to meet new people, and help out like this.

Turning back to the room and walking back towards the centre...

EH: Would anyone else like to share something they did this weekend?

Jésus raised his hand now.

EH: Jésus?

Jésus: Well, I was going to sign up to work in a soup kitchen, but I didn't.

EH: Oh, why didn't you?

Jésus: Well, I didn't have time to.

Jésus looking pained now.

EH: Well that's ok. It's great that Chen worked in a soup kitchen this weekend, but there are lots of other things that any of us could have done that would be just as good. What did you do apart from not working in a soup kitchen?

Jésus: I don't know. I studied a lot. I think I must have wasted time.

EH: If there was studying to be done, then it wasn't a waste of time. Studying is important too, as long as you try to find some time to have to yourself. To do something that exercises bits of you that studying doesn't. Maybe this weekend, it was important that you studied, and another time, you'll get to try something else.

Jésus: Yes, I think I should go to a soup kitchen next weekend.

EH: Well, it doesn't have to be a soup kitchen. Let's hear from some other people about what they did, and get a bunch of ideas of things that we could do that might be important for us. When we don't have studying to do. Of course.

The conversation then opened up with a lot more suggestions of things that people had either done, or had wanted to do and then we moved on with the next class activity.

Observation from class discussion, midway through term

It is clear that Chen is proud of her contribution here. A reticent and admittedly coerced contributor previously, she volunteered this information with genuine enthusiasm. In view of the previous challenges to her identity, this was a huge relief to me. It was also a massive step forwards. I'm not claiming that it was the course that prompted Chen to start volunteering, but I am really pleased that Chen felt it was appropriate to share this in the context of the class. It signalled that this was a part of her evolved identity that she felt was relevant to her position in the class, and was evidence of integration of a non-academic activity into a space that clearly felt limited in our previous interaction. In terms of potential transformation, I think this was a really positive sign that Chen was finding new ways to satisfy a refined conceptual understanding of her role as a student and her ability to self-actualise.

Jésus struggled in this exchange. He experienced a sense of failing in comparison to Chen's achievement. He could have raised his hand and claimed success in the work that he needed to complete, or he could have found some activity that he doubtless did do, worthy of mentioning. Or he could just have not raised his hand. But he needed it to be known that he was aspiring to this difficult task (of volunteering or something equivalent), but that he had fallen short. Again he was demonstrating awareness of his own potential to be different, but wasn't able to actually engage with a process of change or achieving that potential.

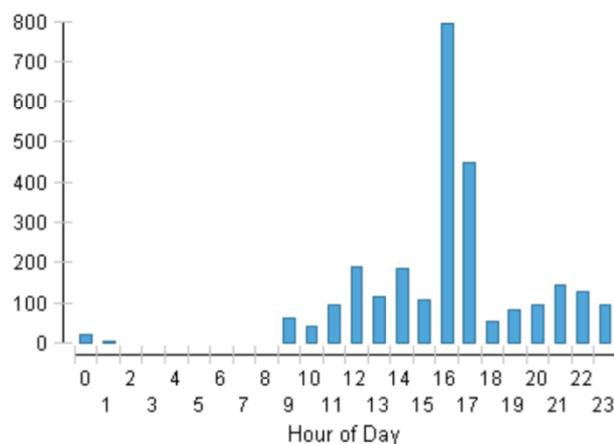
We could view Jésus' struggle here in terms of authenticity of engagement. Chen and Gloria are able to take steps forward as they are able to tolerate and engage with the discomfort of a 'disorienting' dilemma. The change is necessary and meaningful for them. Lois carries her 'shield' into battle with disorientation, and therefore remains, transformatively-speaking, unchanged by the experience. Jésus hasn't really experienced disorientation at all. Therefore his progress with achieving change is not built on a foundation of personal engagement with a need to transform. In terms of Baxter Magolda's (1999) principles, it is clear that he is not situating his potential to transform within his own experience. He is projecting that opportunity onto the experiences of other students. This makes for a hollow

experience for Jésus, with repeated attempts to engage falling short of eliciting true transformation.

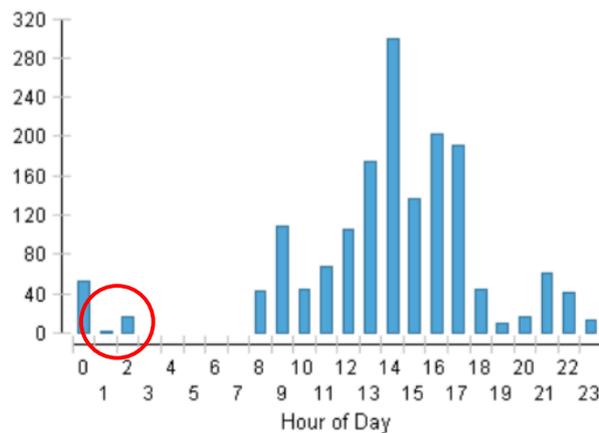
Earning the rights to claim membership of tribe Imperial

Another area for attention within the course pertains to the rather generic and tribal identity of the 'typical Imperial student' that a lot of new students assume when they commence study. Within days they start working through the night, sleeping during the day, and spend as many hours as possible 'learning' – although what is achieved in these many hours is debatable. To help temper this distorted 'ethic', a lot of emphasis during the course is placed on working in a healthy and sustainable manner. This includes not working on the wikis between 1am and 6am.

Each week during our recap of progress so far, I put up a 'working hours' graph that shows the times of day when contributions have been made to the wikis. The class know that there will be a prize if we can record a whole week with no one working online during those hours. Following a week of near success, with no one working from 2am until 6am, we had a blip of work being done at 2am in week 4.



Graph showing contributions to the wikis by hour of day (week 3)



Graph showing contributions to the wikis by hour of day (week 4)

After reminding the class of our near success the previous week, I put up the graph from week 4. There was an audible gasp from the group. I walked up to the screen and pointed at the red circle. Then wheeling back around to the group in mock anger:

EH: Who did this? Who was online working at 2am? When we so nearly secured the prize last week! Who on earth felt the need to work on their wiki at 2am?

I was absolutely not expecting an answer. And was ready to move on. A sheepish hand started to creep up towards the left of the middle section.

EH: This wasn't you!?!

Incredulous that someone wanted to own up to this.

David: It was me, I was working at 2am...

EH: There was something so important that needed to be added to your wiki, that at 2am, you decided to log on and add it?!?

David: (shaking and bowing his head) I know, I know...! I just had to work on it then. I was working all night on other studies, and I thought of something that I wanted to add to our wiki. I shouldn't have done it.

EH: Well, more importantly, you shouldn't have been working all night. When were you planning on sleeping?

David: During lectures the next day...

Audible groan and laughter.

EH: How Imperial! But you are all better than that. You know to take care of yourselves, and you know that there is no need to be working when you're supposed to be 'sleeping'.

Because obviously, if I can't see you working on the wiki in the middle of the night, then I will assume that you've had your five fruit and veg that day, and that you're tucked up in bed getting your beauty sleep.

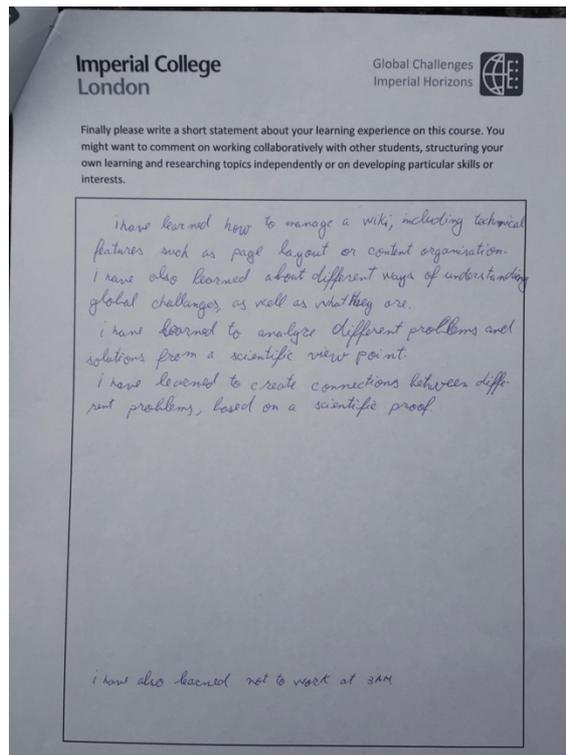
Laughter.

EH: No, don't tell me otherwise. That is what happens. I have to have something to believe in...

Observation from class, week 5

It is puzzling that students adopt this somewhat heroic identity, and cling to it even when they know it is not in their best interests. Aside from the health and well-being benefits of not working at night, there was a prize up for grabs here. David was rather too willing to own up to the 'shame' of having lost the prize for the whole group, because instead he was proclaiming his membership of the 'Imperial student tribe'. This was of greater currency to David at this moment. The glory and honour of suffering this Imperial curse, the long hours, the never ending pressure to succeed requiring endless work, the personal effort that is required (that is of even greater value than any learning that could be achieved by actually staying awake in a lecture). This is what David was proudly showing off by admitting his 'failing' so publicly. He didn't fall short of my expectation, or lose his sense of identity as one of our little class, he rose proudly far above the expectations of membership of this greatest tribe.

However, following his moment of glory, David frequently reflected that it was better not to work after midnight, and even referred to it in his learning reflection. Interestingly though, David wrote about his experience of working on his wiki and about the topic he covered in one block at the top of the page. He frequently emphasises his 'scientific' approach. He then didn't write anything in the middle of the page, and reflected on not working at night in a sentence right at the bottom of the page.



Photograph of David's final learning reflection

It was as though this piece of wisdom gained, was not in the same league as the learning that he had completed on the actual 'academic' aspects of the course. This might speak of a fracture in David's sense of identity. He's willing to engage with a range of values, but he is not able to integrate them into a single sense of himself. They remain partitioned, and attached to the relevant aspects of his identity as a member of tribe Imperial.

So far, I've described Chen's success, Jésus' failing and David's need to belong to the biggest tribe. But maybe success or failure is not the deal here. Maybe in this first and very short experience of this type of learning environment, transformation might be attempted or successfully begun, it might be fully achieved by some, but actually something else might be more important to note.

It would be unrealistic to think that 16 hours of contact time over eight weeks during a confusing and challenging time (the start of university study) is sufficient to effect real transformation. However, if some of the necessary steps are seen as valuable in and of themselves, then this might be a good way to view student engagement with the ideals of the course. Perhaps those first four steps of Mezirow's process (2000) are the critical elements here, to help prepare students for a future transformative experience (experiencing a disorienting dilemma, self-examination, critical assessment of assumptions and finally recognition of the potential for transformation).

In completing a review of all my field notes and retrieved data from the course, I wanted to see whether anything interesting was revealed by the learning reflection numerical scores. I suspected that these would be uninteresting, but in the spirit of completeness I took a quick look.

Now, on average, the learning score for each skill increased by a small amount between the beginning and the end of the course. This was good news, but not groundbreaking, and certainly not statistically interesting. There was no apparent difference between the various skills scored. However, of interest, I noted that a large number of students scored themselves lower for one or more skills in the final learning reflection than in the initial learning reflection.

On closer inspection, this turned out to be 30 out of 51 students. And on reviewing the written reflection for these students many of them commented that they realized that they were not as good at some things as they thought they were in this particular situation.

“I didn’t realise how much I struggled with speaking in front of the group until I did this [course].”

“Before starting our project, I thought that I already knew a fair bit about planning and structuring my own work – how wrong I was.”

“I could have done better in the individual learning part – I should have contributed more.”

“I found it more difficult than I thought to criticise/critically analyse a piece of work. The feedback that I gave for other peoples’ work was a little vague and could use improvement”.

“I thought I was quite organised, but I’m not. I found it really hard to keep contributing to my group and find time to fit in the work. I should have been able to do more.”

“I thought I would be good at analysing data, and that this would be my contribution to the team. But it turns out it was harder than I thought to find real data and to know how to interpret it.”

“I thought that if I decided to do something I was committed. I found out I was only sort of committed to this course. When I realised this, I changed what I worked on to try to make myself more committed. It was harder than I thought.”

“It was much harder to go beyond the set task than I thought. I couldn’t think how to do more, and I found myself wanting to stop.”

“I thought I could make a good argument, but it was harder to make a convincing argument that is backed up by data and that is good academically.”

Excerpts from final learning reflections of students who marked themselves lower for a particular skill at the end of the course than at the beginning

Looking at the individual skills that were being assessed, each listed skill had at least one in ten of the students giving themselves a lower mark at the end of the course, with ‘listening when other people are speaking’, ‘responding to feedback’ and ‘organisation skills’ having the greatest proportion of decreased marks.

This presents evidence that rather than making any great leaps in their ability to perform certain skills, and rather than entering into any great wholesale transformation, what was actually occurring was that the students were becoming more accurately reflective. They were seeing their own skills under the harsh spotlight of their self-directed learning. Without the benefit of well written research questions, defined tasks and 'neat' pieces of work to complete, a rather different mirror was held up for their reflection and consideration. This also challenged their identity as able and competent students and I was really pleased that so many students were able to reflect honestly in their self-marking.

Concluding Remarks

This study yielded more data than I could ever hope to include here, and each individual piece of data was so rich and interesting that I cannot even claim to have explored it in anything but a minor and somewhat superficial way in this brief analysis. However, I hope that the data tells a story that both shares what happens in this particular class room, and explores what this might tell us about students' readiness to engage with this type of learning experience.

Identity and Transformation

The main themes that have been drawn out of the data relate to identity and transformation. We have seen that students experience their identity in a variety of ways, and that being asked to engage in an unusual and challenging learning environment can be experienced as a challenge to their identity. In the case of Chen, this led to some reflection and reconceptualization that allowed her to flourish during the course. Chen is able to recognize the value of different parts of her identity and begin to bring them together. Initially, she wants to be seen as academic, but when she realizes there is value to being seen in a different way, she is more open to sharing other aspects of her identity. This is illustrated in an interesting quote from Gee (2000) – 'when any human being acts and interacts in a given context, others recognize that person as acting and interacting as a certain kind of person' (p.99). We have also seen though, that although an inclusive single identity might seem to be the ideal situation, it may be necessary and indeed preferable for students to be able to inhabit a range of identities simultaneously as they grapple with integration, and the above quote in fact ends 'or even as several different kinds of people at once' (Gee, 2000: p.99) in recognition of this.

In the first chapter, we identified Schiro's (2013) competing ideologies within higher education, and considered how they might also be considered as complementary. Gee's (2000) presentation of four levels of identity (state of nature, institutional position, discursive position and affiliation) describes how we inevitably could view ourselves as having multiple facets to our identity. I don't think his intention though was to suggest that these might represent ideological standpoints. However, when viewing the struggle of students to integrate aspects of their various identities, it does seem as though these different aspects are indeed in competition with each other. The Imperial 'academic' identity is so strong, and socially determined, that it is difficult for students to integrate other aspects of their personhood with this. It was difficult initially for Chen to identify an aspect of her non-academic self that was relevant to her identity as a student studying global issues.

The crossover from the idea of identity (Gee, 2000) to the concept of a 'tribal' identity (Sennett, 2012) allows us to appreciate the power of belonging and acceptance in the expression of identity. David was willing to risk the wrath of his classmates at losing them a prize in order to stake his claim on a truly 'Imperial' identity. David in particular, found it hard to bring together this tribal identity with his own personal development, keeping his

progress in both camps physically separate in his behavior, and indeed in his learning reflection.

The identity struggles and developments of Lois and Gloria help us to see how these issues of identity also relate to 'learning heritage', with Lois struggling to move from a dichotomous, unidirectional model of learning and teaching to an emancipated model (Freire, 1970) that privileges dialogic collaboration and supports a flattened hierarchy in the classroom.

Causing reflection and reconceptualization of both current and potential identities that students might inhabit, may precipitate engagement with a process of transformation. The process as outlined by Mezirow (2000) might be initiated or fully traversed. The transformation in question might be a minor adjustment or a radical realignment. However, the potential of this course to engage the students with transformative learning seems not to lie with wholesale transformation as such, but with engaging the students with the first steps of such a process, including greater self-reflection and reflexive learning.

The course provides an opportunity for students to experience themselves in a new context and provides a framework for them to critically engage with their own skills and abilities. The learning reflections provide a powerful insight into how students are attempting to make sense of their previous learning, their progress in this course and their own potential to engage with a transformational process either now or in the future. In fact, several students included here progressed to a further eight week Global Challenges course the following term, where they explicitly confirmed their intention to further the personal development that they had commenced on this first course, The World Today.

Critical Being and the Creation of Futures

We began by considering the rationale for implementing a programme of learning such as Global Challenges, and we explored the complexity of educating for an uncertain future. If we take Patricia Kelly's (2008) three graduate visions, we can clearly see that the students are grappling with these increasingly sophisticated notions of global competence through their engagement with this initial first year course. However, it does not seem to be simple case of students 'evolving' through these states of increasing or ever more nuanced competence. Our students are exhibiting a much more fractured and, in some ways, chaotic progress when viewed against these criterion. The students' progress is dependent on their prior experience, their readiness and ability to engage with the disorientation of such a challenging environment and their need to change in order to navigate this. Each student is on a unique and individualized pathway. I have no doubt that many of the students will, either in this or in future learning experiences, achieve the status of 'Globo sapiens' (Kelly, 2008: p.13), but I do not find Kelly's framework helpful in planning, supporting or assessing such progress in the students.

A requirement of her educational aspiration is the attainment of Barnett's 'critical being' (Barnett, 1997: p. 102). This involves the integration of three domains of criticality at the highest, transformatory level. Again, while we don't see the students attaining the highest

levels of criticality in each domain during this introductory course, we do see them achieving reflexivity in the knowledge domain, with some evidence of refashioning and transformation, and true self reflection, with evidence of self reconstruction in some cases. However, as with Kelly's (2008) classification, are we doing the individuality of the students a disservice by trying to map their competence in such a generic fashion? I think that the arguments of Tennant (1999) and Barnett (1997) that a move away from a checklist of generic skills is needed, I do not think that the answer is to provide a checklist of 'ways of being'. I understand the semantic difference between a 'skill' and a 'way of being', but if we truly want to achieve something different with students we need to stop fashioning reductive identities for who students should become, or how they should 'be' in the world and try to be more imaginative in our approach. Having said that, the aspirations of 'critical being' (Barnett, 1997) are admirable and are a great step forward from the 'banking education' decried by Paulo Freire (1970).

In our attempts to encourage students to integrate their personal and academic identities in their approach to this complex work, we should aspire to encourage a much more positive, imaginative and reflective consideration of the 'skills' required to make a difference in the world. We shouldn't be afraid of the notion of a skill, but instead open up a useful dialogue regarding the craftsmanship necessary to use those skills to their optimal effect. In combination with validating the student as knower, situating learning within the student's experience and accepting that learning is a process of mutual collaboration and construction (Baxter Magolda, 1999) that does not necessarily have a predefined and predictable end-point, might not only work towards problem-solving a sustainable future for civilization, but may help the students actually create a better future for us all.

The Future of Today

While this work has tried to address the idea of educating students in preparation for an as yet unseen tomorrow, what of the future of this work? The Global Challenges programme comprises another seven courses that build on this early and limited curriculum. Study of these additional courses to see whether these early achievements are continued and to further consider the issues of identity, transformation and criticality would be of great benefit. But before undertaking more research, there is further work to be done here and now with the data collected for this initial ethnographic study. Building a fuller picture of the students' experience, with consideration of the student experience from a broader range of educational perspectives would be a worthwhile endeavour. This study has generated much rich data that deserves to be fully unpacked, analysed and reflected upon. In the meantime, another cohort will embark on this course shortly, beginning their own journeys towards understanding 'the world tomorrow'.

References

Alheit, P. (1992) The Biographical Approach to Adult Education. In: Mader, W. (ed.) *Adult Education in the Federal Republic of Germany: scholarly approaches and professional practice*. Vancouver: University of British Columbia.

Annette, J. (2005) Character, civic renewal and service learning for democratic citizenship in higher education. *British Journal of Educational Studies*, 53 (3), 326-340.

Aronson, E. (1995) *The Social Animal*. New York: W.H. Freeman and Co.

Ashton, S. (2010) Authenticity in Adult Learning. *International Journal of Lifelong Education*, 29 (1), 3-19.

Astin, A. and Astin, H. (2006) Foreword. In: Chickering, A., Dalton, J. and Stamm, L. *Encouraging Authenticity and Spirituality in Higher Education*. San Fransisco, Jossey-Bass pp. vii-xi.

Barnett, R. (1997) *Higher Education: A Critical Business*. Buckingham, The Society for Research into Higher Education and Open University Press.

Barnett, R. (2004) Learning for an unknown future. *Higher Education Research and Development*, 23 (3), 247-260.

Baszanger, I. and Dodier, N. (2004) Ethnography: relating the part to the whole. In: Silverman, D. (Ed.) *Qualitative Research Theory, Method and Practice* (2nd ed.) London, Sage Publications pp. 9-34.

Baxter Magolda, M. (1999). *Creating Contexts for Learning and Self-Authorship*. Nashville, Vanderbilt University Press.

Becher, T. and Trowler, P. (2001) *Academic Tribes and Territories* (2nd ed.) Buckingham, Open University Press.

Becker, H. (1953) Becoming a Marihuana User. *American Journal of Sociology*, 59 (3): 235-242.

Becker, H., Geer, B., Hughes, E. and Strauss, A. (1961) *Boys in White. Student Culture in Medical School*. Chicago, University of Chicago Press.

Becker, H. (1971) Footnote to Wax, M. and Wax, R. Great Tradition, Little Tradition, and Formal Education. In: Wax, M., Diamond, S. and Gearing, F. (Eds.) *Anthropological Perspectives on Education*. New York, Basic Books.

Bernstein, B. (1972) On the classification and framing of educational knowledge. In: Young, M.F.D. (ed.) *Knowledge and Control*. London, Collier-Macmillan pp. 47-69.

Biglan, A. (1973) The characteristics of subject matter in different scientific areas. *Journal of Applied Psychology*, 57, 195–203.

Brundett, M and Silcock, P. (2002) *Achieving Competence, Success and Excellence in Teaching*. London, Routledge.

Bruner, J.S. (1960) *The Process of Education*. Cambridge, Massachusetts, Harvard University Press.

Crick, B. (2000) *Citizenship for 16-19 year olds in education and training: report of the Advisory Group to the Secretary of State for Education and Employment*. London, Further Education Funding Council. Available from: <http://dera.ioe.ac.uk/id/eprint/15157> [Accessed: 2nd April 2016].

Deegan, M. (2001) The Chicago School of Ethnography. In: Atkinson, P., Coffey, A., Delamont, S., Lofland, J. and Lofland, L. (Eds.) *Handbook of Ethnography*. London, Sage Publications, pp. 11-25

Delamont, S. and Atkinson, P. (2004) Qualitative Research and the Postmodern Turn. In: Hardy, M. and Bryman, A. (Eds.) *Handbook of Data Analysis*. London, Sage Publications.

Denscombe, M. (2010) *The Good Research Guide: for small-scale social research projects* (4th Ed.). Maidenhead, Open University Press.

Eisner, E. (1974) *Conflicting conceptions of curriculum*. Berkeley, McCutchan.

Ellis, A. (2004) *Exemplars of curriculum theory*. Larchmont, Eye on Education.

Fernstmacher, G. and Soltis, J (1992) *Approaches to teaching*. New York, Teachers College Press.

Freire, P. (1970) *Pedagogy of the Oppressed*. London, Penguin.

Gee, J. (2000) Identity as an Analytic Lens for Research in Education. *Review of Research in Education*, 25, 99-125.

Geertz, C. (1973) *The Interpretation of Cultures*. New York, Basic Books.

Glaser, B. and Strauss, A. (1967) *The discovery of grounded theory*. Chicago, Aldine.

Grundy, S. (1987) *Curriculum: Product or Praxis?* Lewes, Falmer Press.

Hammersley, M. (1990) *Reading Ethnographic Research: A Critical Guide*. London, Longman.

Hammersley, M. and Atkinson, P. (2007) *Ethnography. Principles in Practice* (3rd ed). Abingdon, Tavistock Publications.

Humphreys, M. and Watson, T. (2009) *Ethnographic Practices: From 'Writing-up Ethnographic Research' to 'Writing Ethnography'*. In: Ybema, S., Yanow, D., Wels, H. and Kamsteeg, F. (eds.) *Organisational Ethnography: Studying The Complexity In Everyday Life*. London, Sage Publications pp. 40-55.

Imperial College. (n.d.) *Graduate Attributes*. Available from: <http://www.imperial.ac.uk/students/academic-support/graduate-attributes/> [Accessed 1st April 2016]

Inayatullah, S. (2007) *Questioning the Future. Methods and Tools for Organizational and Societal Transformation*. Taipei, Tamkang University Press.

Joas, H. (1993) *Pragmatism and social theory*. Chicago, Chicago University Press.

Jung, C. (1958) *The Undiscovered Self*. Abingdon: Routledge.

Kelly, AV. (2004) *The Curriculum. Theory and Practice*. London, Sage Publications.

Kelly, P. (2008) *Towards Globo Sapiens. Transforming Learners in Higher Education*. Rotterdam, Sense Publishers.

Kliebard, H. (2004) *The struggle for the American Curriculum: 1893-1958*. New York, Taylor & Francis.

Kreber, C. (2013) *Authenticity in and through teaching in higher education*. London, Routledge.

Kuper, A. (1977) *Anthropology and Anthropologists*. London, Routledge.

Lattuca, L. and Stark, J. (1994) Will disciplinary perspectives impede curricular reform? *Journal of Higher Education*, 65, 401–426.

Mezirow, J. (2000). *Learning as Transformation: Critical Perspectives on a Theory in Progress*. San Francisco: Jossey Bass.

Mills, C. (1959) *The Sociological Imagination*. Oxford, Oxford University Press.

McNeil, J. (1997) *Curriculum. A comprehensive introduction*. Boston, Little Brown.

Neumann, R., Parry, S. and Becher, T. (2002) Teaching and Learning in their Disciplinary Contexts: a conceptual analysis. *Studies in Higher Education*, 27 (4), 405-417.

Nussbaum, M. and Sen, A. (1993) *The Quality of Life*. Oxford, Clarendon Press.

Posner, G. (1992) *Analyzing the curriculum*. New York, McGraw-Hill.

- Rancière, J. (1991) *The Ignorant Schoolmaster. Five Lessons in Intellectual Emancipation*. Trans. Ross, K. Stanford, Stanford University Press.
- Rogers, C. (1983). *Freedom to Learn for the 80s*. Columbus, Merrill.
- Ryen, A. and Silverman, D. (2000) Marking Boundaries: culture as category work. *Qualitative Inquiry*, 6 (1): 107-28.
- Ryle, G. (2009) *Collected Essays 1929-1968: Collected Papers Vol. 2*. Abingdon, Routledge.
- Sardar, Z. (2010) The Namesake: Futures; futures studies; futurology; futuristic; foresight—What's in a name? *Futures*, 42, 177-184
- Savin-Baden, M. and Howell Major, C. (2012) *Qualitative Research: The essential guide to theory and practice*. London, Routledge.
- Schiro, M. (2013) *Curriculum Theory. Conflicting Visions and Enduring Concerns*. (2nd Ed) London, Sage Publications.
- Schubert, W. (1996) Perspectives on four curriculum traditions. *Educational Horizons*, 74 (4), 169-176.
- Sennett, R. (2012) *Together. The Rituals, Pleasures and Politics of Cooperation*. London, Penguin.
- Strauss, A. and Corbin, J. (1990) *Basics of Qualitative Research*. London: Sage.
- Sweller, J (1988) Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12 (2), 257–285.
- Taylor, E. and Johnston, S.F. (2001) A new paradigm for engineering? An Australian approach. [Conference Presentation] SEFI conference, Copenhagen, 12-14th September.
- Tennant, M. (1999) Is Learning Transferable? In: Boud, D. and Garrick, J. (Eds.) *Understanding Learning at Work*. London, Routledge.
- Van Maanan, J. (2011) *Tales of the Field. On Writing Ethnography* (2nd ed.). Chicago, Chicago University Press.
- Warren Piper, D., Nulty, D.D. and O'Grady, G. (1996) *Examination Practices and Procedures in Australian Universities*. Canberra, Department of Employment, Education, Training and Youth Affairs.
- Watson, T.J. (2008) Participant Observation and Ethnography. In: Thorpe, R. and Holt, R. (Eds.) *Dictionary of Qualitative Management Research*. London, Sage, pp. 89-91.

Zeichner, K. (1993) Traditions of practice in US preservice teacher education. *Teaching and Teacher Education*, 9 (1), 1-13.

Appendix 1: Initial Learning Reflection Worksheet

The World Today – Self-Assessment: Part 1

Name:

CID Number:

1. List any school projects relating to global issues

2. List any additional experience relating to global issues that you have (for example, summer school, Model UN, internships, work experience)

3. Is English your first language? Yes / No

4. Any other comments (use this space to tell your tutor if there is anything that might make it difficult for you to join in with group work and complete the wiki)

5. Mark yourself according to the following scale for the components of the course performance grade – think about what your skill level is now, and what skills you would particularly like to work on during the course.

Speaking in front of the group:



Constructing an argument, stating my opinion clearly, listening and responding to other people's opinions:



Listening when other people are speaking, thinking of constructive questions:



Responding to feedback about my performance:



Writing clearly and logically, with appropriate referencing of sources:



Learning independently, staying motivated and moving beyond set tasks:



Organisation skills – turning up on time, doing what has been asked, preparing for the next session:



Group hygiene skills – getting to know everyone in my group, looking after each other, communicating, learning well together:



Appendix 2: Final Learning Reflection Worksheet

The World Today – Self-Assessment: Part 2

Name:

CID Number:

Mark yourself according to the following scale for the components of the course performance grade – think about what your skills you have demonstrated during the course. Please also put a big star next to any skills where you think you have really improved during the term.

Speaking in front of the group:



Constructing an argument, stating my opinion clearly, listening and responding to other people's opinions:



Listening when other people are speaking, thinking of constructive questions:



Responding to feedback about my performance:



Writing clearly and logically, with appropriate referencing of sources:



Learning independently, staying motivated and moving beyond set tasks:



Organisation skills – turning up on time, doing what has been asked, preparing for the next session:



Group hygiene skills – getting to know everyone in my group, looking after each other, communicating well, learning well together:



Finally, please write a short statement about your learning experience on this course. You might want to comment on working collaboratively with other students, structuring your own learning and researching topics independently or on developing particular skills or interests.

