

## First-year international undergraduate students' experiences of learning through inquiry

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### ABSTRACT

Inquiry-based learning has become an increasingly prominent approach to teaching and learning in UK universities in recent years. However, there is little published research on international students' experiences of learning through inquiry. This paper reports findings from analysis of interviews with six international first-year undergraduate students at a large research-intensive university in the UK. The students were taking a range of social science and arts programmes. The interviews focused on the students' experiences and perceptions of learning at the university, with particular emphasis on learning through inquiry. The influence of epistemological beliefs, disciplinary pedagogies, and students' national and language backgrounds is explored. Most of the international students (like their UK national counterparts in the wider study of which this forms part) had 'information-oriented' conceptions and experiences of inquiry, focused on using inquiry to acquire existing knowledge rather than to create new knowledge. The authors suggest that the development of inclusive inquiry-based pedagogies will benefit from a perspective that recognises similarity as well as difference amongst international and UK-national students, and that there will be value in pedagogies that introduce 'discovery-oriented' inquiry pedagogies from the start of all students' undergraduate careers.

### 1. INTRODUCTION

UK higher education is currently witnessing a growing interest in strengthening the relationship between research and teaching, including through inquiry-based learning. Concurrently, national higher education policy increasingly stresses the importance of internationalising the curriculum and attracting international students. These students enrich the learning environment by bringing their diverse educational, cultural and language backgrounds to the classroom. However, research is needed about the impact and effectiveness of inquiry-based pedagogies, as they relate to international students. A deeper understanding of international students' experiences of learning through inquiry and research will help to address this need.

A relatively large body of research evidence exists on the subject of problem-based learning (e.g. see Savin-Baden and Major, 2004). However, as yet, little research has examined students' perceptions and experiences of learning through inquiry and research or pedagogies based on inquiry and none focuses specifically on the experiences of undergraduate international students in this respect. Amongst the relevant studies, Brew (2007) notes that the qualitative research conducted thus far suggests that students' differing responses to learning through inquiry are influenced by both the discipline in which they are based and their own epistemological beliefs. In a recent quantitative study

by Wuetherick (2007), more than 40% of over 4,500 students responding to three complementary surveys at one Canadian university indicated that they learned best when undertaking their own research, and nearly 50% felt that teaching was most effective when teachers involve students in aspects of the research process (p.6). Research that has examined the impact of inquiry-based pedagogies on student learning achievement is still rare, a recent exception being a longitudinal study undertaken by Justice et al (2007b) in a US university, which identifies a range of positive outcomes including improvements in students' grades and remaining in the university.

A substantial literature has developed which explores the experiences and perceptions of international students globally, a subset of which is devoted to their experiences of studying in UK universities. Spurling's (2007) review identified 116 such recent articles, 38 of which focused on UK universities. However, of the latter, only seven related to student learning, and none of these focused specifically on undergraduate students' learning experiences. Spurling identified a need for much more research to explore learning processes from international students' points of view. Leonard et al's (2003) survey of the grey literature and other unpublished sources regarding the international student experience found that most of these were quite limited in scope, focused on individual institutional settings and framed in terms of students' difficulties.

During the past decade, much of the scholarship that addressed the international student experience of teaching and learning has focused on the concept of inclusive pedagogical practice, as discussed by Trahar (2007). Trahar argues for the need to examine learning and teaching practices critically for their cultural embeddedness and to move from a perspective on teaching as assimilation towards a 'diversimilarity' paradigm that emphasises appreciation of both cultural diversity and similarity. As noted by Trahar, by far the majority of international students in UK higher education are studying at taught and research postgraduate levels. This no doubt explains the much greater attention paid in the literature to international postgraduate students than to international undergraduates. Several recent articles have examined specific aspects of international postgraduate students' learning experiences, often focusing on students from particular cultural backgrounds (for example, Cadman, 2000; Turner, 2006a).

Against this background, this paper reports early findings from an in-depth, longitudinal study (2006-2010) that is examining the inquiry experiences of a cohort of undergraduate students as they progress through programmes in the arts and social sciences at a research-intensive UK university. The university has about 24,000 students and 6,000 staff. Its research culture is well-established, and it enjoys an international reputation in a wide range of fields. Using a participatory, case-based approach, the project is exploring the role of inquiry in the wider context of students' engagement with higher education, the pedagogical and other factors that influence their inquiry experiences, and the transformational outcomes of these over time. Among the participant cohort is a number of international students, whose accounts are the focus of this paper.

The research aims to inform educational practice and innovation at the university, which has adopted inquiry-based learning as a focus for strategic development across the institution, and which promotes approaches to teaching and learning that mirror discipline-

based processes of inquiry and research. Beyond this local purpose, the study aims to contribute to the growing body of research into students' experiences of the research/teaching relationship and inquiry-based learning.

The purpose of this paper is to explore the experiences and perspectives of the international students in the larger study. It is best to think of these students as individuals whose experiences and perceptions have been influenced by a variety of factors, among which are their origins outside the UK, and the fact that their first languages were not English. The analysis presented here is not primarily intended to compare these students' experiences with those of home students. Our study sample was not designed to be statistically representative and we make no claims that these students' experiences are typical of other international students, or that their experiences and perceptions are necessarily different from UK students. Rather, we present these individuals' experiences to enrich understanding of the complex interactions between background, current experience, understanding and perception, specifically as they relate to the pedagogy of inquiry.

### **Inquiry-based learning**

Advocating inquiry-based learning as "*a pedagogy which best enables students to experience the processes of knowledge creation*", Spronken-Smith et al (2007, p. 2) point to its theoretical roots in constructivist and socio-cultural models of learning. Pedagogical strategies range from teacher-led approaches, in which the teacher may set the questions and offer a great deal of guidance and support on the inquiry process, to approaches in which students develop their own questions and determine how to research them. It is common for teacher-led approaches to be associated with lower levels of study and student-led approaches to be associated with higher levels. However, some courses incorporate student-led activities from the first undergraduate year, as a preliminary step in scaffolding induction into the research practices and processes of their disciplinary communities (e.g. Justice et al. 2007a). Hutchings (2007) comments that,

the truest, most radical and empowering forms of enquiry-based learning are those which endow students with the challenge, freedom and responsibility of determining all - or at least as much as is possible - of their learning within the field [...] such enquiry-based learning is closest to replicating genuine research and is its ultimate power as a learning method (pp.19-20).

Inquiry-based learning emphasises the development of intellectual skills, which often requires the explicit teaching of relevant research methodology and techniques. Teachers must devise process support activities and materials to help students develop these and other skills for productive inquiry. Process support activities are those activities that focus on the development of students' capabilities in areas of relevance to inquiry the inquiry process; for example, at the case study university, process support for information literacy development is identified as an important component of inquiry pedagogy (Bing and Levy, 2006). Consistent with the strong explicit focus on process in much inquiry-based learning, student 'process reflection', whereby students monitor and reflect systematically on their experience and practice of learning through inquiry, sometimes for assessed work, is a means of developing meta-cognitive and other skills associated with learning to learn.

For the purposes of this research, 'inquiry-based learning' encompasses case study, problem-based and experiential learning approaches as well as small- and large-scale inquiry-oriented projects and investigations. We use the term 'inquiry-based' in preference to 'research-based' deliberately to include the diverse types of scholarly and research activity that are undertaken across the disciplines. Hutchings (2007) emphasizes that the fundamental element of all inquiry-based learning is *the question*, which is usually but not always open-ended, encouraging learners to explore a range of responses, rather than one correct answer.

As a powerful form of active learning, student-led inquiry has the potential to support the development of capabilities and dispositions - such as critical reflexivity, initiative and social responsibility - that are fundamental not only to academic practice but to full and rewarding participation in a profoundly challenging global context (e.g. Brew, 2006; Healey, 2005). When inquiry is seen as the common link between what students do as learners, and what teachers do as scholars and researchers, possibilities for more integrated approaches to higher learning emerge (Rowland, 2005). Through inquiry, students engage directly with questions and open-ended problems arising out of their discipline or professional practice, potentially entering into fuller participation in the scholarly and research communities of their discipline or profession and thereby becoming better equipped to engage with a world that Barnett (2000) has characterised as inherently 'supercomplex'. Research-based learning can provide students with a context for deep, situated learning through peripheral membership of a community of practice (Blackmore and Cousin, 2003). Brew (2006) offers a powerful vision of inquiry as the defining characteristic of *higher* education, in which the purpose of teaching becomes,

...to induct students into various forms of inquiry so that individuals are able to live in a complex, uncertain world where knowing how to inquire is key to survival. We are looking towards a higher education where inquiry can become centre-stage for both academics and students [...] where academics work collaboratively in partnership with students as members of inclusive, scholarly knowledge-building communities (pp.14-15).

Inquiry-based learning offers students a participatory role in relation to research activity in universities, rather than a role as solely an audience for these activities (Healey, 2005). Over the last decade, stimulated by the Boyer Commission's (1998) critique of the undergraduate education provided by US research universities, a body of work has begun to investigate the ways in which students are positioned within the research-teaching nexus of higher education. As reviewed by Healey (2005), this work has shown that students experience a variety of benefits of staff research activity. However, they also experience drawbacks such as staff absences for research leave, a sense that research takes priority over teaching, and a lack of awareness of the research cultures and activities of their academic disciplines and departments. A recent study by Robertson and Blackler (2006) revealed that different disciplines' research cultures strongly influenced the visibility to students of staff research activity, and students' sense of participation in a research culture through their own learning practices.

## **2. METHODOLOGY**

The research project from which this data is drawn has taken a participatory, interview-based approach. A cohort of undergraduate students who entered the case study university in the autumn of 2006 have engaged in annual cycles of focus groups and one-to-one interviews. This will continue over the three or four years of their studies.

In response to a general email sent to eligible students, we selected a purposive sample of 29 students, representing the range of academic disciplines, genders, and nationalities, from the 60 who volunteered. As this is a qualitative study, we did not attempt to select a statistically representative sample, but aimed to include a wide range of students from social sciences and arts disciplines.

Six participants who are international students are the focus of this paper. In the interests of participant anonymity, we have not identified the specific nationalities, genders, or programmes of study on which these students are enrolled. Broad disciplines that are represented (by both single and dual honours degrees) are: Biblical Studies, Law, Modern Languages, Philosophy and Politics. All of the students have a first language that is not English. Five come from European countries (both recent and older EEC member-states). The sixth comes from an African country. This group is therefore not representative of the larger population of international students at the university, many of whom are from India and Asia, but reflects the demographic of the European and African students who chose to participate in the project.

This paper is based on analysis of data collected in the first year, consisting of three rounds of interviews. The first, in winter 2006-7, consisted of focus group interviews of four to eight participants. The second, which took place in mid-spring, were one-to-one interviews. The third, carried out in late spring, consisted of further focus group sessions. All six international students participated in the three interview rounds.

In the individual interviews, we explored students' understandings and experiences of learning, research and inquiry; their perceptions of research being conducted by staff in the university and in their departments; and, in general, their perceptions of the impacts of the university as a research-intensive environment on their learning experiences. The questions we explored in analysing the data discussed in this paper were: What was the nature of these students' engagement as learners? What were the students' inquiry experiences in their first undergraduate year, including (but not limited to) their experiences of inquiry-based learning as a specific pedagogy? How did they understand and experience learning, inquiry and research? Did they experience themselves as members of a community of inquiry? How did their identities as international students inflect their perceptions and experiences?

### 3. EMERGING THEMES

This paper focuses on the experiences of six international students who are participants in a larger study. Our intention was to explore and represent these specific students' perceptions. By doing so, their accounts enrich our understanding of the ways in which students experience learning at the university, and how their national origins, educational and language backgrounds have influenced these experiences and perceptions.

#### 3.1 Influence of international status

Some aspects of these students' expectations of their degree programmes and university life appear to be inflected by their prior educational experiences, and their goals and aspirations, as international students. They believed that they came to university well-prepared and strongly motivated intellectually as well as socially. They expressed eagerness to participate in a vibrant intellectual culture, and to engage in more intellectual interaction with tutors and peers than, thus far, had been available to them. These feelings often were related to both an expectation of an intensive educational experience based on secondary school experiences, and to a sense of obligation to make the most of their time at the university. Students with prior experience of the International Baccalaureate at secondary level contrasted this with what they perceived as a less demanding experience at university, in some cases in relation to opportunities for engaging in more challenging forms of inquiry and research.

#### 3.2 Engagement

The first year international students in this study typically framed their purposes idealistically in relation to commitments to larger socio-political purposes and roles (including - but not solely - the four out of six who were taking programmes with components of law or politics). They expressed the intention to use their education for the benefit of others, or their country.

...what our daddy said, it shaped our minds since we were kids: if you want to lead, if you want to change your environment, you have to *know*. The only way you can know stuff is studying. You have to study so you can lead other people, you can guide other people.

...when I'm going back, I'm going to work for the government. So I thought it was important to see how other countries see politics and relations at the higher level, so that I could help my own country [...]. Now that [my country] is also part of the European Union it was quite important to know how to manage in this new group.

I want to do something in, like, either I want to be a prosecutor in terms of rape victims and murder victims and abused women, children, etc, and human rights. I really, really badly want to work with them, because I've been interested in politics and how very young kids get abused...

The students also talked about a desire to experience the social aspects of university life, although in all but one case, this was not a primary purpose. Ryan (2005) notes that, for many international students, the choice to study overseas involves some risk: in part because of the amount of investment required from parents and others back home. Consistent with this, several participants also talked about significant financial sacrifices being made by parents and others to enable them to study at the University. They expressed a desire to gain as much as possible from their experience, and in some cases, impatience with other students who did not seem to share the strength of their motivation or intellectual engagement.

These international students reported that they came to the university expecting intensive study, having come from demanding secondary experiences. Three had participated in the International Baccalaureate programme, which features a broad curriculum and latitude for considerable student input into the educational process. They presented themselves as actively engaged learners.

### **3.3 Learning, inquiry and research**

When asked how they thought about themselves as learners, the students often described their approaches to studying, such as how they took notes during lectures or retained information from books they read. The students thought of learning primarily as acquiring information and secondarily, in several cases, as applying knowledge. They typically restricted their discussion of learning to formal learning of curriculum and associated skills development, with mention in some cases of social development; there was little mention of other dimensions of learning.

Several students framed learning as the acquisition of information alone, often without making a sharp distinction between learning and teaching. These students tended to frame their learning roles as passive receivers of knowledge. For others, discussion of learning was oriented more towards active engagement with the subject matter. There were three aspects of this engagement. First, some talked about finding information for themselves, rather than being 'spoon-fed'. They said that the information thus acquired was worth more to them, was more likely to be retained, and thus, was a more effective way to ensure recall of information. Second, this kind of engagement made them feel that they were directing their own learning. Finally, some expressed a nascent sense of themselves as creators of new, unique knowledge.

The importance of the application of knowledge was highlighted by some, and was seen either as evidence that learning had taken place, or as a further step in the learning process:

[Learning is] acquiring information and knowledge and skills, I'd say, and not just to be able to copy it, or to just say, 'this person said...' but to use it as well. Then you've really learnt it, I would say [...] I think that everything you take in, you don't really know it until you can use it, and otherwise you've just taken in information but when you've learnt something you can use it.

Several students described how they had come to university desiring to engage in an intense learning experience in close contact with peers and tutors. They articulated some disappointment and frustration with a perceived lack of intensity in the first year, and especially with less contact, support and guidance from the teaching staff than they had expected. This perspective resonates with that reported in studies of the experiences of postgraduate international students, many of whom are “surprised and disappointed by what they regard as relatively few contact hours” on their degree programmes (Trahar, 2007: 20). Opportunities for independent exploration were valued; at the same time, the first year students in this study emphasised that they wanted support and feedback so that they would know that they were on the right track. One said, “I’m like young still, so I think that guidance is very important.”

Students identified research, broadly defined, as an important component of their learning at university, although their definitions of research varied widely. Some focused on library and internet research, while others pointed to a range of activities, including empirical inquiry of various kinds. We identified two contrasting conceptions of research and inquiry in their accounts, which we have labelled the ‘information’ conception and the ‘discovery’ conception.

### ***Exploring existing disciplinary knowledge - ‘information’ inquiry***

Students who framed research from the ‘information’ conception understood their research as seeking existing answers to questions or problems that had been identified by their teachers. Their responses generally fell into what might be termed an ‘information-responsive’ mode. They described information searching and gathering in preparation for seminars and essay-based coursework, guided by recommended reading lists and undertaken mainly outside the classroom by means of the library and internet. Sometimes their research focused on finding answers to specific questions, and at other times involved open-ended processes of exploration. Students reported intensive activity of these kinds, for example gathering information relating to legal case history (in Law) or exploring secondary texts or other sources in other disciplines. They identified interaction with lecturers as a potential - but not very often experienced - part of this research process. They tended to conceptualise ‘inquiry-based learning’ loosely in terms of the guided or independent information-oriented research activities carried out outside class contact hours on traditional modules, and did not recognise it as a specific pedagogical approach. A few had taken explicitly inquiry-based modules that had been designed to engage students in guided information-seeking investigations and activities such as keeping an electronic ‘inquiry workbook’.

Researching to explore existing disciplinary knowledge was accepted and valued as a fundamental part of learning in higher education, and some students pointed to the degree of independence that is entailed even in guided ‘reading around’: “*even if it’s set reading lists, you do make a choice*”. While there was a general assumption that doing research of this kind was appropriate for the novice learner, the experience was not universally comfortable. One student struggled to understand the purposes of open-ended exploration of this kind, and how to approach the process:



There is a lot of reading, but I think that the reading we have [...] is really out of the blue, and you don't even know what to do with it, you don't have any clear questions, or know how to tackle - or any problem, it's really just a text, and you don't know what are the problems that you're answering, and what you're supposed to know when you've read that text, what information in that text is important, because it's so random.

Some students described 'information-active' experiences of inquiry, in which they were responsible for establishing the direction of research. For example, a project in which students selected their own topics as part of a website-creation project was described:

We got a list of concepts and then we chose our concept from that, and then we decided different ways of approaching it. So I guess that was inquiry-based in a way, because our tutor didn't tell us what to do at all. He was, like, suggesting that these things are quite good to have, like key thinkers, history, contemporary thoughts and case studies. But then we did all the work ourselves and we decided on the concepts.

A less strongly academic conceptualisation of 'information-active' student inquiry was expressed by another student. Associating 'research' with mastering an established body of knowledge from the past, this student was inclined to value information-seeking within a context of outwardly-focused, self-directed engagement with the problems of the contemporary world, and purposeful social activism: *"I think ['academic' research] is over-rated. You need to actively pursue [current] information"*.

These information-oriented perspectives on research reflected students' views of learning as a process of acquiring existing knowledge. For example, one saw learning as *"obtaining knowledge and being able to use it"*, the key indicator of having learned being *"how many answers to teachers' questions you know"*. Consistent with this view, this student's conception of research was *"finding the right sources, trying to learn from them, answer questions"*. Another spoke emphatically of the experience of university learning as *"a discipline, you are submitted to a discipline"*, both in terms of following the conventions of formal timetabling and the direction of the curriculum: *"I have to follow what they're asking me to do if I want to succeed"*. The same student saw research as following up recommended readings independently, in order to gain a deeper understanding of what was to be covered in the curriculum. Several students assumed that objective answers already existed to the questions set, and that the student's research challenge was to identify and understand these.

Sometimes the process of information-gathering was conceived in explicitly quantitative terms: *"It's about finding as much [information] as you possibly can"*. At other times, the importance of being able to find highly relevant information was emphasised. Considered through the lens of information literacy, these perspectives highlight a cluster of foundational capabilities associated with locating, collecting and selecting sources, rather than other, higher-order information literacy capabilities such as critical evaluation, creative and ethical engagement, and synthesis. The literature on the development of, and support for, international students' information literacy suggests that often, language and communication barriers, along with unfamiliarity with the information systems of their host

universities, represent key challenges for them but that their skills may not always be less good than those of UK students (Ashcroft, 2004).

### ***Participating in building disciplinary knowledge - 'discovery' inquiry***

The first thing that comes to mind when you say inquiry is me asking questions, me asking the teacher or the lecturer or my personal tutor, basically asking, but I suppose it can be a bit broader, asking yourself questions, trying to find out more than what you're given.

A different, more ambitious conception of student research and inquiry was expressed by two students in this group, tentatively in one case (as in the quotation above) and more concretely in the other. Here, the idea of research was associated more strongly with personal exploration and discovery in relation to new questions or new lines of investigation that might be generated either by a tutor, or by the student. One student talked about research as personally building on, and contributing to, the established knowledge-base of the field: "*searching for answers to questions that haven't been answered yet*". This was seen as 'real' research, "*something bigger in extent*" than 'information' inquiry:

Something I'd spend more time doing, something really needed - questions that require answers, really contributing to the work, something new, really contribute, not just collecting facts and putting them together like I did [for an essay] more like, you really contribute, come up with something new, something that's yours.

Drawing on experience of a project on the International Baccalaureate programme of pre-university education, the student noted that this could involve asking new questions: "*no-one had posed the question that I had asked in that work*". This student - and the majority of others in this group - had not experienced this discovery-oriented form of inquiry in their first undergraduate year:

Not so much, nothing special. Reading books for essays, choosing important and relevant facts. But I consider this as quite normal, nothing like really searching for answers and stuff, to important questions.

The exception was a project that had offered the possibility of moving beyond student-led exploration and acquisition of disciplinary knowledge into a more discovery-oriented mode. The experience enabled the student to engage in an open-ended, self-directed process of inquiry and contestation mirroring that of scholars in the discipline. The quotation below expresses the transformational impact of the experience and hints at the beginnings of a repositioning of this student as a more empowered learner, both in relation to her teachers and to the knowledge-base of the discipline:

What I liked about it was that I got to do - I mean I was freer in a way. I didn't know that you as a first year, or a student at all, could refute arguments put forward by academics [...] I encountered a theory that I really disagreed with and I had brilliant examples of it not being true at all, and I got to do that by myself. I built

my own arguments, and that was really, really good for me. I really enjoyed that, because it was free. I had no idea that you could do that, and I don't think that you can do that to the same extent in an essay because that mode often is a set question that you have to have – of course you can say if you agree or not agree to what it states, but the question often is based on certain concepts or certain theories, while in this [inquiry] project we could choose our approach by ourselves. That was really good.

### 3.4 Community

The students were generally positive about the emphasis on independent, mostly (as they conceived it) information-oriented research within their degree programmes. However, this emphasis did not afford a strong sense of connection with the wider research culture of their discipline or university. With one exception, the students were not aware of the university's status in the sector as a 'research-intensive' institution and did not recognise the term. They sometimes took it to mean that the university was one in which students were expected to learn primarily through independent research activity carried out beyond teaching contact hours. Some, but not all, were aware that their tutors were pursuing research, and among these there was a perception that limits were placed on contact time with students in order to make this possible. At the same time, there was little knowledge of their tutors' specific research areas or topics, or of the kinds of research activities and processes that were involved. Some students reported that tutors occasionally mentioned their research in class, but that this did not extend to detailed descriptions of their work or to creating opportunities for student participation. Some had occasionally volunteered to be subjects in postgraduate research projects.

The one student who was aware of the 'research-intensive' status of the University valued the opportunity to be associated, as a student, with the visibility and prestige of its research profile. However, the students perceived little or no discernable impact of the research activity of staff on their experience of first-year learning. One described what was experienced as excellent teaching, but did not see any connection between the quality of the teaching and the research activity of the staff involved, or the wider research culture of the institution: "*I don't think [the research context] is so much better when it comes to learning*". Others, despite perceptions of constraints on tutors' contact time resulting from research, considered that tutors' research activity was, on balance, a positive contribution to their own learning. Lectures might contain information not yet to be found in books, and occasional examples drawn from current research were experienced as fresh and interesting. Some students said that their tutors' involvement in research demonstrated passion and commitment to learning, and they valued this highly. However, these students did not experience the University as an environment in which it was easy to pursue active dialogue with more experienced members of the scholarly community. Some expressed a strong desire for closer engagement. For example:

I don't know if they're distracted by their own work, but sometimes, even though they say that their door is open and all that [...] basically, what I get from what [they're] saying is like, 'don't bother me' [...] One of the lecturers I find very interesting, that has a lot of personal opinions about things, so I would have liked

for him to be more open and accept challenge and discussion, but generally, I think that most of the work you have to do on your own.

#### **4. DISCUSSION**

Previous research suggests that students' responses to inquiry-based learning are influenced by their epistemological beliefs and by the discipline in which they are situated (Brew, 2007). We intend to follow up questions of intellectual development and disciplinarity in further work. The accounts these students gave of student inquiry in the first undergraduate year revealed two broad conceptual frames through which their varied experiences could be viewed and differentiated. We have labelled these, provisionally, the 'information frame' and the 'discovery frame'. When viewed through the information frame, student research and inquiry was understood as exploration and acquisition of existing disciplinary knowledge; viewed through the discovery frame, it was understood as participation in the development of disciplinary knowledge. A conceptual map of this has been discussed in detail elsewhere (Levy and Petruilis, 2007).

Our findings reveal a strong orientation, within this mixed disciplinary group of first-year international students, towards understanding student inquiry and research as a matter of accumulating information to find answers to questions put to them to encourage acquisition of existing knowledge. While these students presented themselves as self-motivated and active learners, this did not extend strongly to 'higher-order' dimensions of inquiry and research; in other words, their identities as learners were not yet firmly oriented towards developing as self-directing inquirers. The students seldom talked about pursuing answers to questions they themselves had posed or the contestable status of disciplinary knowledge, and the inquiry process was usually conceived as a search for specific answers or information. Open-ended forms of inquiry were experienced as challenging. Nevertheless, some students expressed enthusiasm to pursue their own questions and approaches, and found such opportunities to be particularly meaningful and powerful. Those who valued the freedom to define their own inquiry tasks emphasised the importance of support and guidance for the process. That these positive responses to discovery-oriented modes of learning were present amongst this small group of international students suggests that such responses may be under-documented in the wider literature on international students' learning experiences.

This wider (but still relatively small) literature does not offer any insights to suggest whether a connection could be made between 'information-oriented' perspectives on learning and inquiry and features of learning associated specifically with international student identities. However, in the case of the students in this study, it appears that their 'information' orientation may correlate less with factors associated with their international identities than with aspects of intellectual and personal development that were shared in common with the UK-national students (e.g. see Kegan, 1994; Perry, 1998). In the wider study of which this forms part, we found consistency across the sample as a whole, in that the same broad pattern of student perception and experience in relation to inquiry was evident in both the national and international student groups.

Little research has, as yet, been carried out specifically on international undergraduate students' experiences of learning in discovery mode, but there is a growing body of literature on challenges encountered by some international students in relation to the development of autonomous learning capabilities including 'critical thinking' (e.g. Turner (2006a, 2006b)). Spurling (2007) points out a lack of agreement in the UK literature on definitions of pedagogical concepts such as this and indicates that varying, often implicit, assumptions and expectations about teaching and learning among academic staff can present particular difficulties to international students whose expectations have been formed in other educational systems. This may be exacerbated by limited contact with academic staff and receipt of feedback in the first year.

Perhaps in part as a consequence of this latter experience, we found that, in the main, the international students in our study (like their UK national counterparts) did not experience a sense of participation in the research culture and communities of the university - either as derived from their own research and inquiry practices, or from engagement with more experienced researchers. While they did not report a sense of exclusion, they did not visualize potential connections between their own activity as learners and the research activity of their tutors. Their awareness of their tutors as researchers and of the wider research context of the university was quite limited. There was little, if any, evidence of a perception of 'peripheral membership' of a community of practice (Wenger, 1998). Thus, while these students' interpretation of inquiry as information-acquisition may be at odds with that of their teachers, our findings suggest that this interpretation may not in general be greatly challenged by the information-oriented pedagogical approaches, and the cultural disconnect at institutional level between research and teaching, that they reported experiencing.

## 5. CONCLUDING REMARKS

In this paper we have examined a group of international students' perceptions and experiences of research and inquiry, and their position within the research-teaching nexus, in the first undergraduate year. The data offer some evidence that factors such as national and cultural background, educational values, and stages of intellectual development all influenced these students' conceptions of, and responses to, research and inquiry, as well as the nature of the inquiry tasks and facilitation strategies to which they are exposed. Students' typically 'information-oriented' conceptions of research reflected their views of learning as essentially a process of acquiring existing knowledge.

Ryan (2005) identifies three types of 'shock' experienced by international students as they first encounter study away from their home country, *culture shock*, *language shock*, and *academic shock*. Perhaps because five of six of the international students in this study were from European countries and all were proficient English speakers, their accounts did not dwell upon the first two types. There was, however, evidence of academic shock. An academic norm at the university is to promote learner independence. Compared to their learning at the secondary level, the students in this study experienced limited contact with, and feedback from, teachers during their first year of study.

Our research raises practical questions about the design and facilitation of inquiry-based learning for students, and also suggests avenues for practitioner-led pedagogical inquiry into specific aspects of international students' learning experiences. Brew (2006) argues that universities must prioritise the induction of students into forms of inquiry that will empower them to engage actively with the demands of a highly complex world. Students in this study expressed a desire for an intense and connected learning experience, in which freedom to explore their own ideas would be combined, in the first year, with plenty of support, guidance and feedback from tutors. At the same time, they most frequently conceived of, and experienced, student inquiry and research as a means to acquire existing knowledge, rather than as a means to begin to formulate and pursue their own lines of inquiry. We have classified their research and inquiry experiences as mainly 'information-responsive' (staff-led) and 'information-active' (student-led), rather than discovery-oriented. However, evidence in our data points to the value of inquiry-based pedagogies that extend beyond facilitating students' exploration and acquisition of existing knowledge to introducing them to the development and pursuit of their own inquiry questions from the start of their undergraduate careers.

We conclude with a reflection on the question of international student identities and intellectual development in UK universities. It is clearly important to recognise that international identities are multiple and diverse. This is not to downplay the importance and impact of cultural difference, and its possible implications for pedagogy, but to recognise the potential for similarity across cultures as well as difference. The research reported in this paper showed that while their educational backgrounds varied, this particular group of European and African undergraduates' ways of understanding learning and inquiry, and of experiencing the first undergraduate year, had much in common with those of their UK-national counterparts. Factors relating to personal epistemology, disciplinary pedagogy and institutional context, all were important in shaping their experiences of the first year, alongside factors of prior educational and cultural experience. While it is perhaps not entirely surprising that a group of (mostly) European students might share some fundamental perspectives on learning with UK nationals, this nevertheless seems to support the adoption of a critical, 'diversimilarity' perspective (Trahar, 2007) as a promising framework for the development of inclusive inquiry-based pedagogies.

## REFERENCES

Ashcroft, L. and Varga-Atkins, T. (2004) 'Information skills of undergraduate business students: a comparison of UK and international students'. In *Library Management*, 25 (1/2) 39-55.

Barnett, R. (2000) *Realizing the University in an Age of Supercomplexity*. Buckingham: Society for Research into Higher Education and Open University Press.

Bing, P. and Levy, P. (2006) 'Inquiry-based learning and information literacy development: a CETL approach'. In *ITALICS*, 5(2). Available at: [http://www.ics.heacademy.ac.uk/italics/vol5iss2/strategic%20IL%20\(4\).htm](http://www.ics.heacademy.ac.uk/italics/vol5iss2/strategic%20IL%20(4).htm) [accessed 10 June 2008]

Blackmore, P. and Cousin, G. (2003) 'Linking teaching and research through research-based learning'. In *Educational Development*, 4(4), 24-27.

Boyer Commission on Educating Undergraduates in the Research University (1998) *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*. Available at: <http://naples.cc.sunysb.edu/Pres/boyer.nsf/> [accessed 10 June 2008].

Brew, A. (2006) *Research and Teaching: Beyond the Divide*. Basingstoke: Palgrave Macmillan.

Brew, A. (2007) 'Research and teaching from the students' perspective'. Paper prepared for the *International Colloquium on International Policies and Practices for Academic Enquiry*, Marwell, Winchester, UK, April 19-21, 2007. Available at: [http://portal-live.solent.ac.uk/university/rtconference/2007/resources/angela\\_brew.pdf](http://portal-live.solent.ac.uk/university/rtconference/2007/resources/angela_brew.pdf) [accessed 10 June 2008].

Cadman, K., (2000) 'Voices in the air: evaluations of the learning experiences of international postgraduates and their supervisors'. In *Teaching in Higher Education*, 5 (4), 475-491.

Healey, M. (2005) 'Linking research and teaching: exploring disciplinary spaces and the role of inquiry-based learning'. In R. Barnett (ed.) *Reshaping the University: New Relationships between Research, Scholarship and Teaching*. Buckingham: Society for Research into Higher Education and Open University Press.

Hutchings, W. (2007) *Enquiry-based learning: definitions and rationale*. Available at: [http://www.campus.manchester.ac.uk/ceeb/resources/essays/hutchings2007\\_definingebl.pdf](http://www.campus.manchester.ac.uk/ceeb/resources/essays/hutchings2007_definingebl.pdf) [accessed 10 June 2008].

Justice, C., Rice, J., Warry, W., Inglis, S., Miller, S., Sammon, S. (2007a) 'Inquiry in higher education: reflections and directions on course design and teaching methods'. In *Innovative Higher Education*, 31, 201-214.

Justice, C., Rice, J., Warry, W., Laurie, I. (2007b). Taking an 'Inquiry' course makes a difference: a comparative analysis of student learning, *Journal on Excellence in College Teaching*, 18 (1). Available at: <http://celt.muohio.edu/ject/> [accessed 10 June 2008].

Kegan, R. (1994) *In over our heads: the mental demands of modern life*. Cambridge, Mass.: Harvard University Press.

Leonard, D., Pelletier, C. and Morley, L. (2003) *The experiences of international students in UK higher education: a review of unpublished material*, UKCISA. Available at: [http://www.ukcosa.org.uk/about/pubs\\_research.php](http://www.ukcosa.org.uk/about/pubs_research.php) [accessed 10 June 2008].

Levy P. and Petruilis, R., (2007) 'Towards transformation? First year students, inquiry-based learning and the research/teaching nexus'. Paper presented at the *Annual Conference of the Society for Research into Higher Education*, 11-13 December, Brighton, Sussex. Available at: <http://www.srhe.ac.uk/conference2007> [accessed 10 June 2008].

- Perry, W. (1998) (2<sup>nd</sup> ed.) *Forms of ethical and intellectual development in the college years: a scheme*. San Francisco: Jossey-Bass.
- Robertson, J. and Blackler, G. (2006) 'Students' experiences of learning in a research environment'. In *Higher Education Research and Development*, 25 (3), 215-229.
- Rowland, S. (2005) 'Intellectual love and the link between teaching and research'. In R, Barnett (ed.) *Reshaping the University: New Relationships between Research, Scholarship and Teaching*. Buckingham: Society for Research into Higher Education and Open University Press.
- Ryan, J. (2005) 'The student experience'. In J. Carroll and J. Ryan (eds.) *Teaching international students: improving learning for all*. London: Routledge.
- Spronken-Smith, R., Angelo, T., Mathews, H., O'Sheen, B. and Robertson, J. (2007) 'How effective is inquiry-based learning in linking teaching and research?' Paper prepared for the *International Colloquium on International Policies and Practices for Academic Enquiry*, Marwell, Winchester, UK, April 19-21, 2007. Available at: <http://portal-live.solent.ac.uk/university/rtconference/2007/resources/Rachel%20Spronken-Smith.pdf> [accessed 10 June 2008].
- Spurling, N. (2007) 'The experience of international students'. In V. Caruana and N. Spurling, *The Internationalisation of UK Higher Education: a review of selected material*. Higher Education Academy Project Report available at: [http://www.heacademy.ac.uk/assets/York/documents/ourwork/tla/internationalisation/lit\\_review\\_internationalisation\\_of\\_uk\\_he\\_v2.pdf](http://www.heacademy.ac.uk/assets/York/documents/ourwork/tla/internationalisation/lit_review_internationalisation_of_uk_he_v2.pdf) [accessed 10 June 2008].
- Trahar, S., (2007) *Teaching and Learning: The International Higher Education Landscape, some theories and working practices*. Higher Education Academy Education Subject Centre.
- Turner, Y. (2006a) 'Chinese students in a UK business school: hearing the student voice in reflective teaching and learning practice'. In *Higher Education Quarterly*, 60, 27-51.
- Turner, Y., (2006b) 'Students from mainland China and critical thinking in postgraduate business and management degrees: teasing out tensions of culture, style and substance'. In *International Journal of Management Education*, 5 (1) pp.3-11. Available at: <http://www.heacademy.ac.uk/business/publications/ijme/vol5no1> [accessed 10 June 2008].
- Wenger, E. (1998) *Communities-of-Practice: Learning, Meaning and Identity*. Cambridge: Cambridge University Press.
- Wuetherick, B. (2007) 'The integration of teaching and research in Canada: the undergraduate student perspective'. Paper prepared for the *International Colloquium on International Policies and Practices for Academic Enquiry*, Marwell, Winchester, UK, April 19-21, 2007. Available at: [http://portal-live.solent.ac.uk/university/rtconference/2007/resources/brad\\_wuetherick.pdf](http://portal-live.solent.ac.uk/university/rtconference/2007/resources/brad_wuetherick.pdf) [accessed 10 June 2008].



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