Informal Mobile Podcasting And Learning Adaptations for Transition (IMAPAL4T)

Palitha Edirisingha, Chris Cane, Robert Cane and Samuel Nikoi, University of Leicester
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Executive Summary

1) Background

The Informal Mobile Podcasting And Learning Adaptations for Transition (IMAPAL4T) research project aimed to answer the questions: How can undergraduates' informal knowledge and experience, captured and delivered through podcasts, support transition into HE? Do students perceive that they benefit from podcasts, and if so how?

Studies identify the critical importance of the first year for shaping students' attitudes and approaches to learning. Positive transition into HE has a direct impact on students' later learning experiences.

Most interventions to support transition from school to university are institution-driven, such as courses on study skills. The knowledge and experience of students who have already made the transition have rarely been exploited. Such knowledge is considered to be 'hot knowledge' (Ball and Vincent, 1998). Studies of students' preparation for HE report that potential applicants consider 'hot knowledge' to be more trustworthy than communication through 'official' sources (Hutchings, 2003).

Podcasting can capture this 'hot knowledge' and make it available. IMPALA4T used podcasting to develop a new approach by tapping the knowledge and experience of current undergraduates.

IMPALA4T was built on the ten-factor design model developed during the IMPALA project (Salmon and Edirisingha, 2008; impala.ac.uk), and is linked to the University of Leicester's GENIE (Genetics Education Networking for Innovation and Excellence) Centre of Excellence for Teaching and Learning (CETL) (le.ac.uk/genetics/genie/).

2) Methods

The project consisted of: developing two sets of podcasts (Type A and B); making the podcasts available for students; researching how podcasts supported the transition process; and disseminating project outcomes. Type A podcasts aimed to address the transition issues facing students about to start their first HE course, while Type B were for those in their first year.

Thirteen Type A podcasts were developed, covering topics such as leaving home, making new friends, accommodation, managing money and differences between school and university. These podcasts were made available from July 2008 through an open website at www.startinguni.info to prospective HE applicants.

Type B podcasts were made available for first year students at the Department of Biological Sciences at the University of Leicester during their first and second semesters of the first year. Twenty four Type B podcasts were made which aimed to address transition issues for students in their first year, for example, progressing from first to second semester and first to second year, coping with exams, choosing modules, lab work, library projects, and productive activities in summer vacation. These podcasts were made available from the module site on Blackboard Virtual Learning Environment (VLE).

Using qualitative interviews with students, we examined how podcasts helped with their transition issues. Eight students who had listened to Type A and a further eight who had listened to Type B volunteered for one-hour long interviews that were recorded for further analyses.

3) Results

Interviews with students revealed that these podcasts addressed issues that were significant for them and challenging for the process of transition. These were areas where first year students faced making difficult decisions (ones that caused them anxiety), and they felt they lacked necessary information and guidance.

Our interviews showed that existing sources of information and guidance contained many flaws. Although most students had access to family 'cultural capital' (with at least one family member with HE experience), such sources were not very useful in the specific environment of courses in Biological Sciences at the University of Leicester. They said that other potential sources of advice were either not readily available or not well used by students: many could not identify a useful source of informal knowledge and advice to support their transition.

The students attributed particular legitimacy to the podcasts, as they helped them to hear the opinions of peers with firsthand knowledge and experience of the situations they described. Podcast technology therefore was successful in capturing informal knowledge and opinions drawn from experience. Students believed that the hot knowledge helped by providing new information and perspectives, advice regarding positive behaviours, the reinforcement of existing knowledge and behaviours and the provision of emotional reassurance. Because the podcasts drew on other students' direct experience, many students were willing to act on the information and advice.

Podcasts in the context of sources of information to support transition

The relevance of podcasts needs to be contextualised within the broad range of sources of information that students use to aid their transition. Students discussed their use of three categories of information and sources: formal, informal and semi-formal.

Formal resources are available to students from official university sources; they consist of highly structured and factual information, which Ball and Vincent (1998) called 'cold' knowledge, such as institutional printed materials and websites, or information provided during open days. Although all students used such material, it was described as uninteresting, difficult to digest and devoid of direct experience. They felt that lecturers' experience on these matters were out-dated.

The second category of resources is more **informal**. These include information from family members and friends who have been through university, or from peers. Ball and Vincent (1998) considered this to be 'hot' knowledge, which is based on personal experience and opinions, rather than cold, official knowledge.

These sources also had their limitations. They can be highly subjective; students feared that they may not get the necessary facts; or that they might be misinformed. This was a concern to students who are first in their families to go into higher education.

Between formal and informal sources lies a third category that we called **semi-formal** resources. These are officially provided, but students access them on a more personal basis. Examples are personal tutors and peer mentors. Podcasts developed for IMPALA4T fit into this category.

These sources provide the opinions and experiential perspective of hot knowledge, but are officially provided and made for all students. This means that they can be monitored for quality and accuracy. They can provide multiple subjective viewpoints, which can mitigate any lack of objectivity. We suggest the term '**warm knowledge**' to describe the knowledge inherent in semi-formal sources (and in our IMPALA4T podcasts) as it lies between cold and hot knowledge.

A model of transition process

Drawing on the evidence from Type A and Type B interviews, we developed a model of the HE transition process. The transition process consists of **an initial phase** in which students apply to universities and choose which to attend, through **a middle phase** in which they begin their courses, and **a final phase** where, following the initial settling in period, they attempt to engage further with what is required of them in the HE environment, especially as they advance into their second (and even third) year. The initial phase consists of two stages that we identify as 'information seeking' and 'inspection' while the middle phase consists of a further two stages that we term 'locating' and 'adjustment'. A new HE entrant goes through these transitory stages from school or college until they embark on an HE course. The final phase consists of two more stages - 're-adjustment' and 'structuring' - where a new HE entrant begins a new social and academic life at the university. IMPALA4T podcasts covered all the stages of the process of transition that we have identified, except for inspection, which involved students actually visiting the HE institution.

Our review of the literature on student transition to HE showed that most interventions to support transition stops at the end of the middle phase. However, students who listened to Type B podcasts clearly described the existence of a far more extensive period of uncertainty and transition. The final stage involves continued adaptation to the learning environment after early assessments such as first essays and January exams and the critical reflection that the results bring, which is a re-adjustment. There is a restructuring for the future stages of the course, through module selection, planning for the summer, and towards final destination. IMPALA4T demonstrated that student-created podcasts could support the final stage of transition.

How podcasts helped in the transition process

The podcasts can, potentially, avoid the problems that other semi-formal resources have faced. By being accessible from anywhere with a suitable internet connection, they are easier and quicker to access than personal tutors or peer mentors with whom meetings must be arranged or e-mails exchanged, and can be used by students even before they choose to attend the university. Furthermore, since they are edited together from several interviews incorrect information can easily be avoided and interesting and relevant voices from different contributors can be provided to everyone, which would be difficult to manage with the peer mentor scheme or with personal tutors.

Thus, the podcasts can provide a useful complement to other resources used to assist with the transition process. All the students agreed that the podcasts could be of use to them as sources

of opinions, perspectives and information that they could use whilst adapting to the higher education environment and making crucial decisions for their future.

Conclusions

We carried out the IMPALA4T research project to examine how student-created podcasts can support new HE entrants' transition from schools and colleges to university, and for those already some way into their first year in making a successful transition into and within the higher education environment.

From the analysis of our evidence, it was clear that the podcasts created for IMPALA4T project covered a range of issues with which the students interviewed had problems, both at the point of entering the university and during their first year of study. It was also clear that existing sources of information and guidance available to the students contained many limitations, leaving a gap that can be filled by different materials or programmes designed to aid students in their extended transition into higher education.

The evidence from the interviews demonstrated that the students believed that the 'hot knowledge' contained within the podcasts could serve a number of roles within their process of transition. These included conveying new information and perspectives, offering advice regarding positive behaviours, the reinforcement of existing knowledge and behaviours, and the provision of emotional reassurance. In each case, the status of the podcasts as sources of captured hot knowledge and the fact that all the information in the podcasts was drawn from students' direct experience, meant that many students interviewed were more willing to accept the information and advice, and the podcasts were more effective than other approaches have been.

Recommendations

The model that we have developed from IMPALA4T (Fig. 5 in the main report), depicting how podcasts could be incorporated into the HE transition process, provides a systematic approach to making decisions about developing podcasts to support transition. It puts the primary focus on the stages of transition that are most important before allocating resources to develop podcasts.

Once the podcasts have been developed and made available to students, their content remains static unless they are constantly updated. We suggest that podcasts be made available together with Web 2.0 tools (such as a blog or a wiki) as a mechanism to keep the podcasts up-to-date. Tutors and students can add comments on important points made in podcasts.

Our students found that the podcasts provided them with support for their process of transition into HE. Given the small number of students from one academic department interviewed in this pilot project, it would be useful to conduct a larger study representing different academic disciplines, from a wider cross section of HE institutions, to examine the applicability of our findings to the sector. We also recommend further research to examine the potential benefits of using other social software tools to capture and disseminate 'hot' knowledge.

Informal Mobile Podcasting And Learning Adaptation for Transition (IMPALA4T) – main report

Contents

List of boxes

List of figures

1. Background

Informal Mobile Podcasting And Learning Adaptation for Transition (IMPALA4T) investigated how student-created podcasts can support students' transition into Higher Education (HE). The project was built on the ten-factor design model developed by the University of Leicester's Beyond Distance Research Alliance (BDRA) during the HEA-funded IMPALA project (impala.ac.uk).

Studies of undergraduates' satisfaction, academic performance and retention in Higher Education (HE) identify the critical importance of the first year for shaping their attitudes and approaches to learning. Positive transition into HE has a direct impact on students' later learning experience, particularly during their first year. Most interventions to support transitions are based on institution-driven approaches such as courses on learning and study skills. IMPALA4T used podcasting to develop a new approach by tapping the knowledge and experience of current undergraduates.

IMPALA4T was also directly linked to the University of Leicester GENIE (Genetics Education Networking for Innovation and Excellence) CETL's (a Centre of Excellence for Teaching and Learning) work, which aimed at improving learner experience in HE and its outreach programmes with schools and colleges. In particular IMPALA4T was built on GENIE's on-going work on investigating the student experience of first year Biological Sciences students, where undergraduates chronicle their learning and social experiences by weekly video diaries.

1.1 Literature review

For students, poor transition into university life and difficulties with its academic and social demands are key contributors to underachievement and drop out. An Ulster study found that up to 20 percent of new students encountered difficulties in adjusting, managing their workload and becoming independent learners, leading to 1 in 6 withdrawing (Lowe and Cook, 2003). Students' preparedness for and awareness of HE are critical factors contributing to their successful transition into HE (NAO, 2002; Boyle, Carter and Clark, 2002). HE students' age, ethnicity, socio-economic background and family HE history (Taylor, Barr and Steele, 2002) all affect their preparedness for HE. New entrants may hold misconceptions and many are inadequately prepared for the university's assessment procedures, hours of face-to-face contact, the independent study required, the large size of lecture groups, and the choices to be made among modular options (Lowe and Cook, 2003; Byrne and Flood, 2005; Laing, Chao and Robinson, 2005; Robothom and Julian, 2006).

Preparation for HE should include understanding HE and its 'institutional habitus', meaning the values and practices of cultural or social groups that are embedded in and mediated through the culture of an institution (Reay, David and Ball, 2001, 2005). A student who is unprepared can feel like a 'fish out of water' (Thomas, 2002, p. 431). Support for transition could bridge the gap between 'institutional habitus' and a person's habitus, but HEIs typically respond by providing formal courses in study skills (Hultberg et al, 2008; Walker, Matthew and Black, 2004; Knox, 2005).

The knowledge and experience of students who have already made the transition have rarely been exploited. Such knowledge is considered 'hot knowledge' (Ball and Vincent, 1998): 'the socially embedded' knowledge prevailing in networks of friends, family, relatives and neighbours, the people who are generally considered as 'people like me' (Hutching, 2003, p. 110). Studies on HE preparation report that potential applicants consider 'hot knowledge' to be more trustworthy than communication through 'official' sources (Hutchings, 2003).

Podcasting can capture this 'hot knowledge' and make it available to HE entrants and those studying at Level 1. Despite the interest in and links between informal learning and mobile devices (Sharples, Taylor and Vavoula, 2007), little attention has been given to exploiting novel ways of improving peer-supported transition into HE. Salmon and Edirisingha (2008) document four approaches to using student-created podcasts to provide first-year support: addressing students' misconceptions and anxiety about HE; developing their reflection skills; advising them on their assessed work; and developing their research skills. Using podcasting technology and mobile devices familiar to HE students, IMPALA4T aimed to tap into the knowledge and experience of students who recently made their own transition in order to support those embarking on this transition themselves.

2. Aims

The IMPALA4T project at the University of Leicester set out to investigate how student-created podcasts might support new HE entrants' transition into HE. It aimed to answer the following research questions:

- How does undergraduates' informal knowledge and experience, captured and delivered through podcasting technology, support the transition of new cohorts of students entering HE? Can these 'Type A' podcasts support informal learning that enhances new learners' transition into HE?

- Do first year HE students perceive that they benefit from podcasts developed specifically for them (Type B podcasts)? If so, how?

IMPALA4T also aimed to develop a transferable model of incorporating undergraduates' informal knowledge and experience ('hot knowledge') into podcasts for the benefit of learners about to start HE and for those well into their first year (Level 1).

3. Methods

The IMPALA4T research project consisted of: developing two sets of podcasts (Type A and B); making them available for students; researching the impact of podcasts on student transition; and disseminating project outcomes. Type A podcasts were developed for the benefit of learners about to start their first HE course, and Type B for those in their first year.

Development of podcasts involved identifying content relevant for podcasts through focus group interviews with current Level 1 and Level 2 students at the Department of Biological Sciences at the University of Leicester, and from the Department's ongoing student experience project. Podcast development and distribution was carried out under the guidance of Dr Chris Cane and the support of a learning technologist with a science and teaching background.

Thirteen Type A podcasts (each about 5 minutes) were developed during May – June 2008 and were distributed in July 2008 for prospective students through a publicly accessible website at www.startinguni.info (Box 1) and iTunes. These podcasts covered topics such as leaving home, making new friends, accommodation, managing money and differences between school and university (see Box 2 for a list of Type A podcasts). Information about the availability of these podcasts and how to access them, and their potential benefits to the A-Level students, was made available to the schools and colleges that were associated with the GENIE CETL irrespective of students' intended final HE destination.

Type B podcasts were developed during the first and second semesters of the academic year 08/09, and were made available for the same cohort of students during their second semester of the first year via Blackboard Virtual Learning Environment (VLE). Twenty four Type B podcasts (see Boxes 3 and 4 for a list of podcasts) were made which aimed to address transition issues for students in their first year, for example, progressing from first to second semester and first to second year, coping with exams, choosing modules, lab work, library projects, and productive activities in the summer vacation.

Box. 1: A screen shot of the StartingUni.info homepage

Type A podcasts

1. Starting university
2. Adapting to University
3. Accommodation
4. Learning and teaching
   - Learning and teaching
   - Study skills
   - Lectures and tutorials
   - Assessment and feedback
   - Support and advice
   - Blackboard
   - Practicals
5. Money management
6. International students

Box 2: A list of Type A podcasts

Type B podcasts - General

1. Differences between the Levels (4:22)
2. Lab projects (3:44)
3. Library projects (3:25)
4. Year Abroad (2:21)
5. Choosing modules – general (1:50)
6. Exams (9:35)

Box 3: A list of Type B podcasts addressing teaching and learning issues in Year 1 and 2.

Type A podcasts – 2ⁿᵈ year module selection

BS2052 Gene Expression and Regulation (7:54)
BS2064 Bioinformatics of Genes (5:57)
BS2009 Genomes (4:27)
BS2010 Microbiology I (4:19)
BS2013 Physiology & Pharmacology I (3:27)
BS2025 Developmental Biology (2:33)
BS2057 Molecular Cell Biology (2:16)
BS2060 Research Skills (2:43)
BS2026 Genes, Development and Inheritance (1:22)
BS2051 Exploring Proteins (1:21)
BS2014 Physiology & Pharmacology II (1:01)
BS2069 Biology of the Chromosome (1:05)
BS2053 Metabolic Regulation (0:48)
BS2056 Molecular Machines (0:43)

Box 4: A list of Type B podcasts to help students' choice of 2ⁿᵈ year modules

Qualitative research methods were used to examine how students' transition to HE can be supported by Type A and Type B podcasts. Eight students who had listened to Type A podcasts, and a further eight who listened to Type B podcasts volunteered for one-hour long interviews that were recorded. Type A research interviews were carried out during November and early December 2008 (towards the end of Semester 1 of academic year 08/09). Type B interviews were carried out between May and July 2009, after students had completed their first year exams.

Data analysis was carried out using cognitive mapping. As a research methodology, cognitive mapping supports a subjective view of knowledge in which individual beliefs, assertions, attitudes and values are considered valid and hence provide evidence for research (Ackermann, Eden and Steve, 2004). The purpose of the data analysis was to enable detailed modelling of the views, perceptions and feelings of the research participants with regard to podcasts for transition. The analysis thus focused on generating individual maps of participants' experience of making the transition into HE and the perceived benefits of the podcasts in the transition process. Such individually-generated maps helped to identify similarities and differences between students in their experience of transition. The data analysis was guided by relevant themes obtained from literature on transition; for example, background, expectations, experiences and processes of making adjustment. However the analysis was open to new evidence from the dataset which either challenged, extended or provided new knowledge on transition.

4 Results

Throughout the interviews, the students identified that all the issues addressed in podcasts were ones with which they experienced difficulties; for them, these issues constituted a significant and challenging part of their process of transition. For new HE entrants, coping with leaving home and close networks of friends, making new friends, adjusting to a new life at university accommodation, managing finances and adjusting to studying as an undergraduate were particularly significant issues. For students in their first year, the issues were the selection of modules, examinations, study practices and whether or not to undertake a year abroad or in industry. Students described these as areas in which they needed to make difficult decisions (in some cases, causing significant anxiety), and they lacked necessary information and guidance.

4.1   Students' experience of transition to HE

Interview data showed that students understood transition from school / college and home into HE as occurring into three environments: institutional, teaching and learning, and social, each with unique attributes. Fig. 1 summarises the attributes of these three environments together with how the Type A podcasts help in this process.

First, students understood transition as moving from one level of the educational experience up to a new and higher level, HE. They compared their experience of being at school or college with that at university. For them, the class size, a non-uniformed environment and tough demands made of them in their studies were notable differences in studying at university.

Second, transition was understood in terms of new ways of engaging with teaching and learning processes. Whereas at school or college they had worked in small groups and under close supervision and the guidance of class teachers, they reported that learning in university took many forms such as lectures, practical sessions, individual and group assignments, presentations, a lot of reading and independent study. To them this made learning at university more demanding. They also experienced tighter deadlines.

Third, transition was constructed by students as moving into a new socio-cultural environment. They expressed transition in terms of leaving home, gaining independence, living away from loved ones, maturing and growing up, and being exposed to a variety of people.

The analysis shows that students perceived transition as bringing 'discontinuity', that is, ending particular ways of behaving or doing things as they pertained in school or college.

Transition from school / college to university

Environment	Institutional	Teaching and learning	Social
Attributes of the environment	Different to school or college Bigger Tougher	Methods of delivery Expectations of the learner Structure of the learning experience	New independence Greater maturity required More diverse range of people
How podcasts helped	Helped to manage anxieties and provide reassurance Provided information about support services Corrected mis-conceptions	Aided engagement with support services Provided information about learning processes Aided development of learning skills Increased motivation to use available resources	Provided information necessary for lifestyle changes Provided guidance on forming new relationships Provided information about the city and the local area

Fig. 1: Transition into HE and the supporting role of podcasts

4.2   The process of student transition into higher education

Drawing on the evidence provided by students who had listened to Type A and Type B podcasts, a broad picture of the stages and phases of their transition into HE can be developed (Fig 2). Transition process extends from **an initial transitionary phase** in which students apply to universities and choose which one to attend, through **a middle phase** in which they begin their courses, into **a final phase** where, following the initial settling in period, they attempt to engage further with what is required of them in the HE environment, especially as they advance into their second (and even third) year.

Fig. 2: Phases of student transition into Higher Education

The Type A podcasts covered issues arising from the first two phases in the transition, and the students who had listened to them described a process that includes four stages: **information seeking**, **inspection**, **locating** and **adjustment**.

The first two of these stages (**information seeking** and **inspection**) occur when students are choosing a university, and involve the gathering of relevant information about courses, facilities and social environments through information seeking, which involves th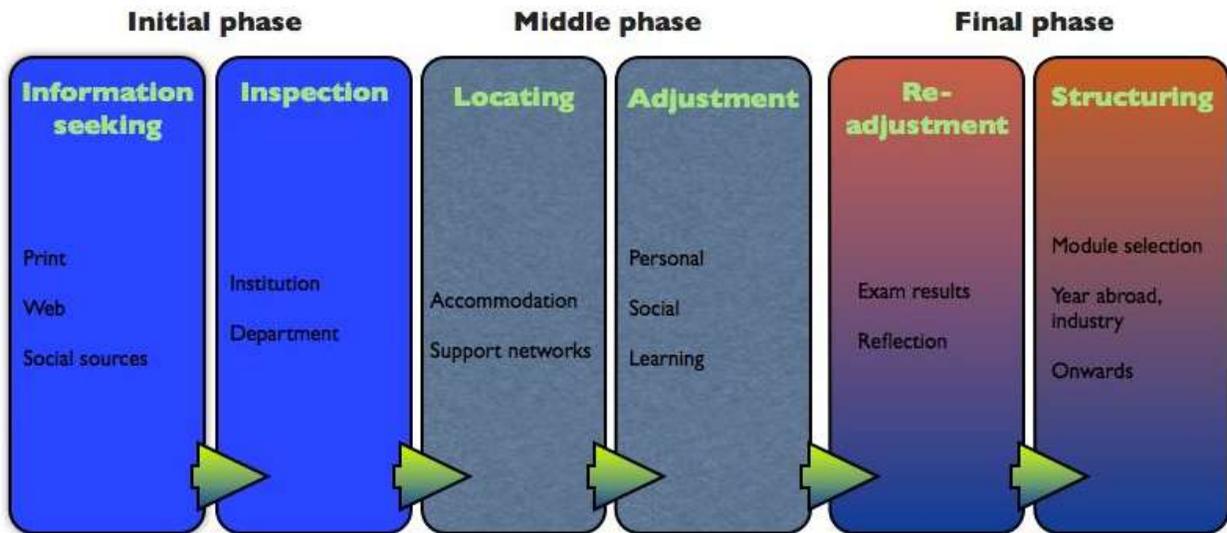e consultation of various printed (prospectus, letters sent by the university to applicant), web-based (mainly the university websites, but one student reported using Facebook), and social sources (siblings, friends, and parents). In this phase, students visit and inspect the institution and relevant departments, for example, on open days.

The second two stages (**locating** and **adjustment**) occur whilst the students are actually moving to university and during the initial period in which they become accustomed to life at university. This involves both a physical relocation to the university and an adjustment to the new environment that they find there. In terms of physical relocation the students described a process that begins with a search for information about accommodation choices and involves physically moving in, as well as locating new social and support networks after leaving the old ones behind. **Adjustment** takes this one step further as the students seek to integrate themselves on a personal level (behavioural changes, places of personal importance (e.g. religious), and potential loneliness), on a social level (social groups, support networks, and entertainments), and into the learning environment (methods, expectations, and support networks) present at the university.

Our analyses of the literature on transition showed that formal programmes to support transition often finish at this point. However, the students who listened to the Type B podcasts clearly described the existence of a far more extensive period of uncertainty and transition.

The final, extended phase of transition that they described involves continued adaptation to the learning environment following early assessments (particularly, first essays and exams in January) and the critical reflection that the relevant results can bring (**re-adjustment**). In the transition period that follows after a student enters HE, student interviews reveal a development of a structure for the future stages of their course through, for example, module selection or the

decision to take a year abroad or in industry. This **re-structuring** stage is often deeply influenced by tentatively-answered questions about their personal goals in pursuing HE, and intended destination(s) after completing their undergraduate studies.

4.3   Resources used by students to support their transition

To help them address the difficulties involved in each stage of transition, the students interviewed consulted a range of resources, which can be usefully sorted into three categories: formal resources, informal resources, and semi-formal resources (Fig. 3).
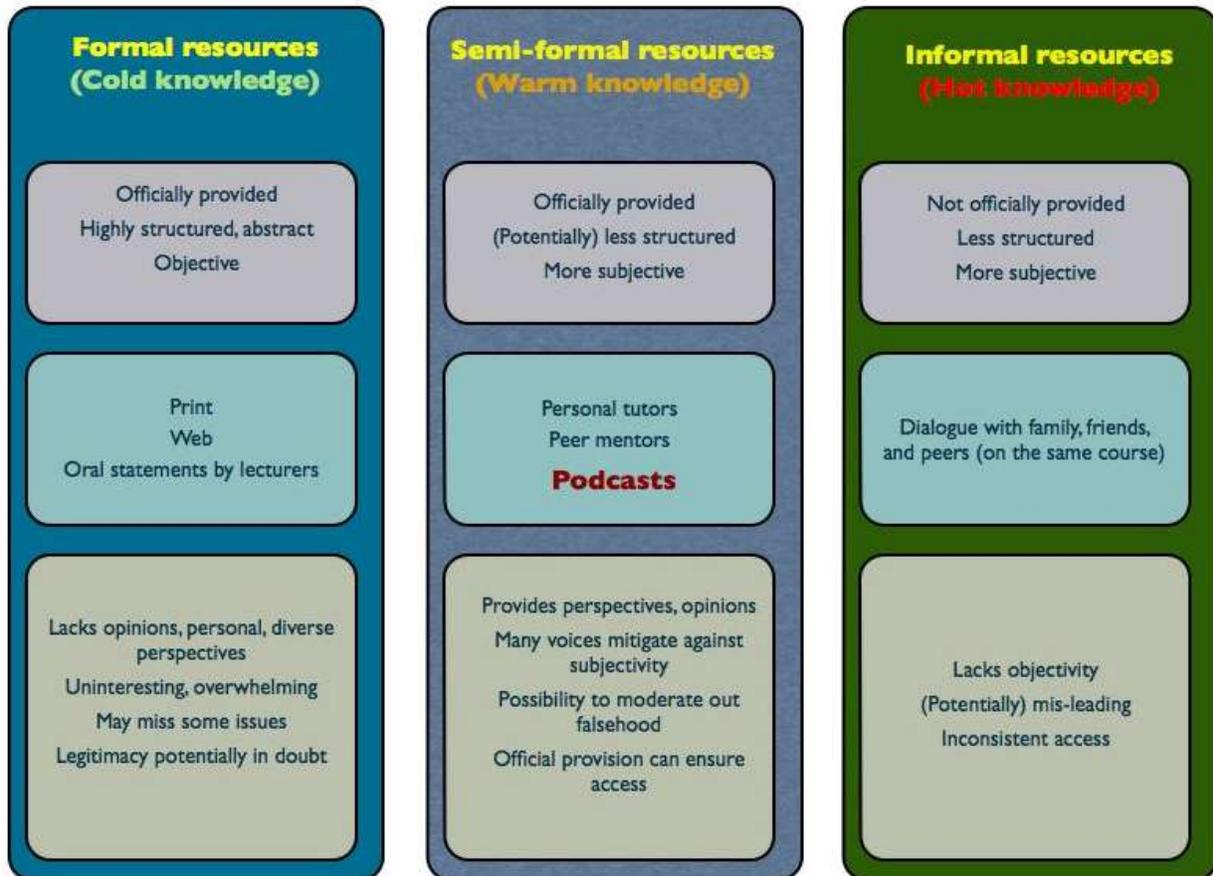
Formal resources (Cold knowledge)	**Semi-formal resources (Warm knowledge)**	**Informal resources (Hot knowledge)**
Officially provided Highly structured, abstract Objective	Officially provided (Potentially) less structured More subjective	Not officially provided Less structured More subjective
Print Web Oral statements by lecturers	Personal tutors Peer mentors **Podcasts**	Dialogue with family, friends, and peers (on the same course)
Lacks opinions, personal, diverse perspectives Uninteresting, overwhelming May miss some issues Legitimacy potentially in doubt	Provides perspectives, opinions Many voices mitigate against subjectivity Possibility to moderate out falsehood Official provision can ensure access	Lacks objectivity (Potentially) mis-leading Inconsistent access

Fig. 3: Resources used by students to support their transition

Formal resources

Formal resources are those that are officially produced and provided by the HE institution; these include highly structured, factual and abstract information. That is, they provide what might be called 'cold knowledge', according to Ball and Vincent (1998). These include the various printed materials used for information seeking, as well as module booklets used in selecting modules for the second year, alongside information taken from websites and the VLE, and formal information relayed by lecturers during lectures or on open days.

Although almost all the students reported making use of such resources, most of them felt that they were either poorly suited to aiding them in the various stages of their transition or not

enough on their own. Whilst some students acknowledged that the formal written information provided by the printed module handbook and the documents on VLE provided a good **'outline'** of relevant **'facts'**, others criticised it for not containing **'enough description'**, and, most critically, not being able to provide **'opinions'** and information derived from personal experience, which can highlight particularly salient elements of the first year student experience. Some students even expressed displeasure at having to read large amounts of text containing dry, factual information.

Many students identified information in the podcasts that they felt was relevant to them, but which had been missed by the formal sources of information, which were not derived from the direct experience of students. One student even argued that the official and formal nature of such sources (which for her included lecturers and personal tutors) meant that they would only say **'what they're supposed to say'** and not what the student needs to hear. Finally, in a related point, many students expressed that, while the formal sources of information were good for initial **'factual stuff'** many decisions required the use of opinions and different perspectives that were simply not present in the formal resources.

Informal sources

One way in which students overcame these concerns about formal information was by using informal resources, such as family members or friends who had been through university, or, when they were in their first year at university, by consulting their peers. These resources are unofficial and accessed in an informal environment, and thus provide a source of hot knowledge, which is based on personal experience and opinion, rather than 'cold', abstract facts.

Most students we interviewed described their use of less formal sources of information, which could provide the subjective balance to the facts provided by the formal information. At the most informal, this involved seeking advice from family members that had previously been to university and through social interactions with their peers (both within their own year and in higher years). However, these sources were always described within the context of the use of other more formal sources of information, and faced their own problems.

Although most students referred to advice and guidance received from family members before attending university, only one (who had family members in the medical profession) suggested that the family members had the knowledge required to provide the significant guidance needed in the first year of studies. One student even explicitly stated that they felt that their family did not have the necessary experience to provide the advice required for the 'readjustment' and 'structuring' stages (in Fig. 2).

Whilst such resources did, for many of the students, overcome the defects of the formal resources (such as the lack of diverse perspectives and opinions, and the insensitivity to particular circumstances), they were not without their own faults. First, since the information provided is often highly subjective, many students expressed a fear that they may not be the objective facts, or, at worst, that they may actually be told something that is simply not true, especially when talking to people who had little more experience than they themselves did (e.g. other students in their own year). Perhaps, even more problematically, in some cases the students stated that they did not actually know anyone with relevant HE experience. This was particularly the case for those who were amongst the first in their family to go to university, but was also particularly relevant with regard to the issues covered in the Type B podcasts (module selection, examinations, etc) which are specific the Biological Sciences courses at the University of Leicester, rather than the kinds of issues faced more generally by all university students.

Semi-formal sources

One potential solution to many of these problems was to use semi-formal resources, a category which includes the podcasts produced through Impala4T. These resources are officially provided by the university; examples include peer mentors and personal tutors. Students can access these resources on a personal level to hear insights drawn from relevant personal experience. These sources have the advantage that they do provide the opinions and experiential perspectives of hot knowledge, but also as they are officially provided, they can be monitored for quality and be made available to all students.

Podcasts fit into this semi-formal category, potentially acting as a new source of information for students to support their transition. Students perceived these podcasts to be recordings of individuals sharing their insights and opinions on particular topics, moderated to prevent incorrect information from being spread, providing multiple subjective viewpoints, which was understood to mitigate the lack of objectivity (a point commonly raised by the students when complementing the podcasts).

We suggested that the knowledge contained in podcasts and other semi-formal resources might be termed **'warm knowledge'** as it lies somewhere between the cold and hot knowledge of the other two resources.

Semi-formal resources, too, are not without their pitfalls. Many students reported that they had not made consistent or widespread use of their peer mentors or personal tutors, and the quality of information provided by individuals fulfilling such roles were extremely variable. Indeed, some students reported that their personal tutors provided a large amount of personal advice, whereas others treated them as an extension of the formal resources and suggested that their personal tutors may not have had relevant experience and relied upon the abstract and dry formal information.

The podcasts can, potentially, avoid the problems that other semi-formal resources have faced. By being accessible from anywhere with a suitable internet connection, they are easier and quicker to access than personal tutors or peer mentors with whom meetings must be arranged or e-mails exchanged. They can also be used by students even before they choose to attend the university. Furthermore, since they are edited together from several interviews, incorrect information can easily be removed. Podcasts can contain many interesting and relevant viewpoints from different contributors. They can also be provided to everyone, which would be difficult to manage with the peer mentor scheme or with personal tutors.

Thus, the podcasts can provide a useful addition to the other resources that are already used to assist with the transition process. All the students agreed that the podcasts could be of some use to them as sources of opinions, perspectives and information that they could use whilst adapting to the higher education environment and making crucial decisions for their future.

4.4   Students' reactions to podcasts

Ball and Vincent (1998) noted that individuals react to and use hot knowledge in three different manners: displaying suspicion, doubt and/or acceptance. They identified these three categories based on research into how parents use hot knowledge (derived from the knowledge and experiences of other parents) in making decisions regarding the choice of schools for their children. We adopted these categories to analyse how the warm knowledge of the podcasts (which is still, mostly, personal, subjective and experiential) was used by the students in our study. Fig. 4 summarises students' reaction to the information contained in IMPALA4T Type A and B podcasts.
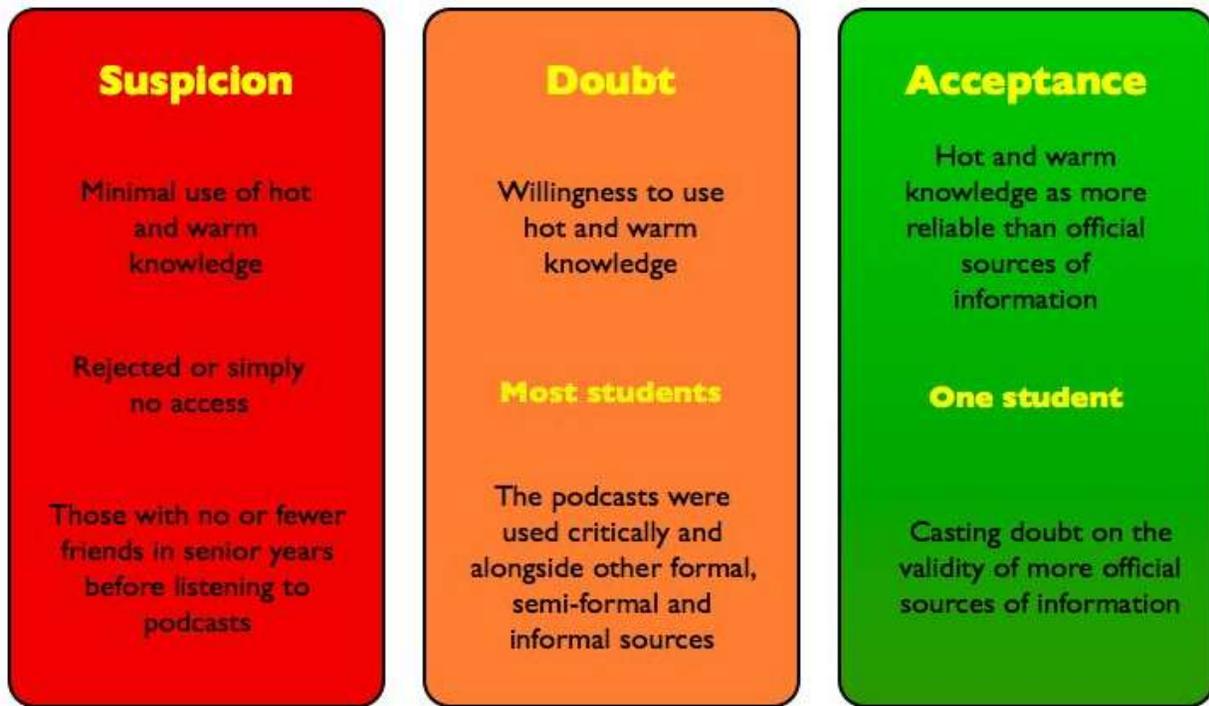
Fig. 4: Students reaction to information contained in podcasts

Suspicion

The category of **suspicion** entails a minimal use of warm (or hot) knowledge; it has been rejected on the grounds that it cannot be trusted and, consequently, is replaced or supplemented either by other sources of information or personal opinions.

A significant minority of students referred to the fact that the information, opinions and advice provided by the students in the podcasts was only based upon their own limited experiences, and liable to be deeply subjective. They described patterns of engagement with the podcasts that suggested critical assessment of the material provided in them:

> You know they're opinions, so you take it with a pinch of salt.

> I think that [we] should just use it with an open mind and not be persuaded… .

Some students interviewed suggested that the format of the podcasts helped to mitigate the subjective nature of many of the statements made:

> You get a range of opinions…and it gets you thinking where do you stand in that situation.

> I think you need other students as well, ask them what they think, sort of find an average view of what they all think.

In terms of the students interviewed, the strongest allusions to behaviour consistent with suspicion were in their accounts of the lack of friends or family with relevant experience, which troubled some students before they listened to the podcasts. However, closer examination of these students' interviews reveal that their reactions to podcasts were closer to the behaviour to be expected in the category of **doubt**.

Doubt

This category, into which the majority of the students interviewed easily fitted, involves behaviour that displays acceptance of the importance of warm knowledge, with a critical eye on potential biases and weaknesses. In many cases, students displayed an attempt to use podcasts alongside other sources of information in order to balance those weaknesses. Thus, most students expressed an awareness of the subjective nature of the information provided in the podcasts, but still considered it valuable as it originated from students who had relevant experience. To offset the subjective information, most students described processes of information gathering that included a wide variety of sources (both more and less formal). They valued the multiplicity of voices included within the podcasts. Some students expressed more doubt over the value of the warm knowledge provided in the podcasts than others. One student (who had a negative opinion of the formal resources) expressed levels of acceptance of the information in the podcasts that were close to those categorised as 'acceptance', although they did still accept that they would use other sources of information.

All students interviewed recognised that they would have to include the podcasts within a broader spectrum of information sources available to them. Particularly with regard to the selection of modules, all the interviewees described a process of information gathering that involved multiple different sources, and placed the podcasts within that context:

> I guess, I think that they just sort of reinforce what you have gathered from blackboard and from your tutors. Because I think it's better to have a more – I can't say that they don't really know what they're talking about, they're just students, but, if somebody who's telling you this is probably your tutor, or somebody who teaches the programme and who has seen a lot of students or helped a lot of students with their options, it's better to listen to them and then you go on and you listen to your peers and what they have to say.

Acceptance

Behaviour related to the category of acceptance involves a general acceptance of the sources of warm knowledge and an indication that it is considered more legitimate than most official, formal sources of information. Other than the one case mentioned above, none of the students interviewed really described patterns of engagement that matched uncritical acceptance. Indeed, the general nature of the approach taken by most students interviewed was one of critical engagement with information sources that are broader than just the content of the podcasts, and tend to include elements of the information provided by formal resources as well.

Therefore, the students pointed out the value of podcasts to aid them in various stages of their transition, even if that use was, generally, critical. Indeed, the podcasts covered all of the stages of the process of transition defined above (Fig. 2), except for Inspection, which involved actually visiting the campus.

4.5   How podcasts helped in the transition process

All students said that, to some degree, they had found useful information and advice in the podcasts, even whilst approaching it critically. The usefulness of podcasts for students' transition to HE can be split into three categories: the communication of new information and perspectives, the provision of advice regarding new positive behaviours, and reassurance regarding existing perspectives and behaviours.

Information and personal perspectives

All the interviewees suggested that the podcasts contained useful extra sources of information and advice. Indeed, two students even directly identified them as a solution to the lack of opportunities to learn from the experiential, informal knowledge of second and third year students:

> There's no real way to speak to second years and third years apart from [by listening to] the podcasts.

> So, if this [podcast] is available to us on blackboard we wouldn't need to go look for second years to ask them, because this is already available.

Indeed, the main source of legitimacy identified for the podcasts was the fact that the information contained within them was relayed by other students, from their own experiences:

> They've been there, they've done that, so they can give you the proper advice.

> I'd rather hear it [information] from students than – almost more than my tutor. The students have experienced what I have. They can understand my worries a bit more.

Indeed, one student interviewed even expressed the opinion that only their peers would give fully honest advice, whereas personal tutors and module convenors may only say **'what they're supposed to say'.**

Many interviewees detailed specific points of information that they had gleaned from the podcasts that they had not found elsewhere. Indeed, many even suggested that such information was more likely to occur when it was being provided informally by those with direct experience of being a student on their course:

> With lecturers, or with the information that module convenors give out, it's important information, but not necessarily things that you need to know. Whereas, when it's a student talking, it's only things that they've dealt with and if they feel the need to tell you then it's obviously important.

This was particularly prevalent in relation to the podcasts on individual second year modules, especially regarding course content (e.g. the fact that the module 'Genomes is about the Genome as a whole rather than genetics in general'), and the nature of practicals (in particular, the fact that 'some of them are six hours long'). The students suggested that they would use such information to orientate themselves going into their modules in the next year. In a similar retrospective vein regarding the podcast on examinations, one student suggested that:

> If I had heard them [a Type B podcast on the exams] before I had my exams, it would have been quite useful because it sort of said how the exam was set out… .

Similarly, and looking to the future, some students also suggested that they had discovered, from podcasts, facts about the laboratory and library projects that they would have to do in their

third year, as well as information about the work that they would have to do in their second and third years and a possible year abroad (particularly the financial elements of it).

The information detailed above consisted of facts, rather than evaluative perspectives, and provided a similar style of information to the written materials that the interviewees identified as an existing source of information. However, most students also suggested that the podcasts made new evaluative perspectives and opinions available to them in a way that the less personal and more formal written materials could not. Indeed, as was noted above, most of them recognised that a large amount of information provided in the podcasts was deeply subjective.

Many interviewees suggested that they would have used the opinions expressed in the podcasts to inform their own choices of second year modules, had they listened to them before selecting their modules. One interviewee, for example, said:

> When choosing modules, as well, I think it's good to know other people's experiences [from the podcasts].

Another interviewee expressed uncertainty regarding their module choices given the opinions expressed within the podcast:

> …everyone was saying how much they loved it [Microbiology], and I'm kind of wondering whether I should have chosen it now.

Such opinions and perspectives were not, however, only found in the podcasts regarding the selection of modules. For example, the podcast on the differences between the levels provided some of the students with several perspectives regarding the actual difference between first and second years and the nature of laboratory work.

Advice

Some interviewees also described specific advice that they had discerned from the podcasts. The advice provided in podcasts took the form of suggestions for behaviours that the students on the podcasts believed would be productive and would aid others as they advanced through their degree course, and was often taken to be particularly relevant due to its origins in the experience of the students giving the advice on the podcasts. These suggestions were particularly prevalent in relation to study skills and module selection. In some cases, the interviewees even announced that they would be following the advice provided by the podcasts:

> This summer I'm definitely going to try and start background reading already, because obviously that's really important. It was mentioned in loads of the podcasts.

However, given that the interviews were conducted at the end of the first year, much of the advice discerned by the students interviewed was described not as suggestions of new actions that they would undertake, but, rather as suggestions of actions that they should have undertaken during their first year. This included, most notably, advice regarding the process of module selection, and, in particular, the suggestion that it may have been useful to contact their peer mentor before making any final decisions.

Reassurance and reinforcement

The final category of the usefulness of podcasts did not include the imparting of new wisdom, knowledge or advice, but the provision of support for existing knowledge and behaviours. Whilst some students criticised some of the podcasts (especially those on the differences between the levels (year of study) and exams for merely stating the obvious, many of them described how the

podcasts reinforced certain pieces of information, as well as the need, of which they were already aware, for certain courses of action:

> I think, some of the points raised – things like doing extra reading – it does seem obvious, but I think just hearing people say it, kind of installs that it is vital.

> I guess, I think that they just sort of reinforce what you have gathered from blackboard and from your tutors.

However, according to many interviewees, the podcasts' main benefits in terms of this more subsidiary role was that they served to reduce uncertainty and the consequent anxiety regarding particular actions, behaviours and choices. In the case of the module selection, this meant that they helped to reassure the interviewees that they would enjoy the modules that they had chosen:

> It [the podcast about the Genomes module] says: 'if you're really interested in genes and if you're doing genetics, then it's really useful'. I'm interested in genes. It's quite good to know I've made the right choice.

Some of the interviewees also suggested that they were similarly reassured by the podcasts on other topics, most notably on examinations, which were a significant source of stress. These podcasts demonstrated to them that their concerns and difficulties were perfectly normal, which served to comfort them. As one interviewee said:

> It's nice just to listen to that and to find that people have the same worries and the same problems that you did.

4.6   A model of incorporating podcasts to support the HE transition process

The model of the HE transition process that we have developed and illustrated in Fig. 2 (Section 4.2 above) can be further developed into an extended model that can be useful for developing podcasts to support the transition process.

The HE transition model in Fig. 2 consists of three phases (initial, middle and final) covering six stages of transition: information seeking, inspection, locating, adjustment, re-adjustment and structuring. Interviews showed the variety of sources of information available for new HE entrants for each stage, and their usefulness and shortcomings.

By mapping the content covered in IMPALA4T Type A and B podcasts on to these stages, we can examine how the podcasts supported the information needs of each stage of transition (Fig. 5). For example, Type A podcasts that contained information needs for international students, accommodation and the City of Leicester have been useful for students in the 'Information seeking' and 'locating' stages while information regarding the choice of 2nd year modules and spending a year abroad were useful in the final phase of 'structuring'. Fig. 5 provides further selected examples of how Type A and B podcasts map onto the different stages of the transition process. As the figure shows, IMPALA4T podcasts did not support the 'Inspection' stage where students visited a chosen number of HE institutions, for example, on open days before choosing one.
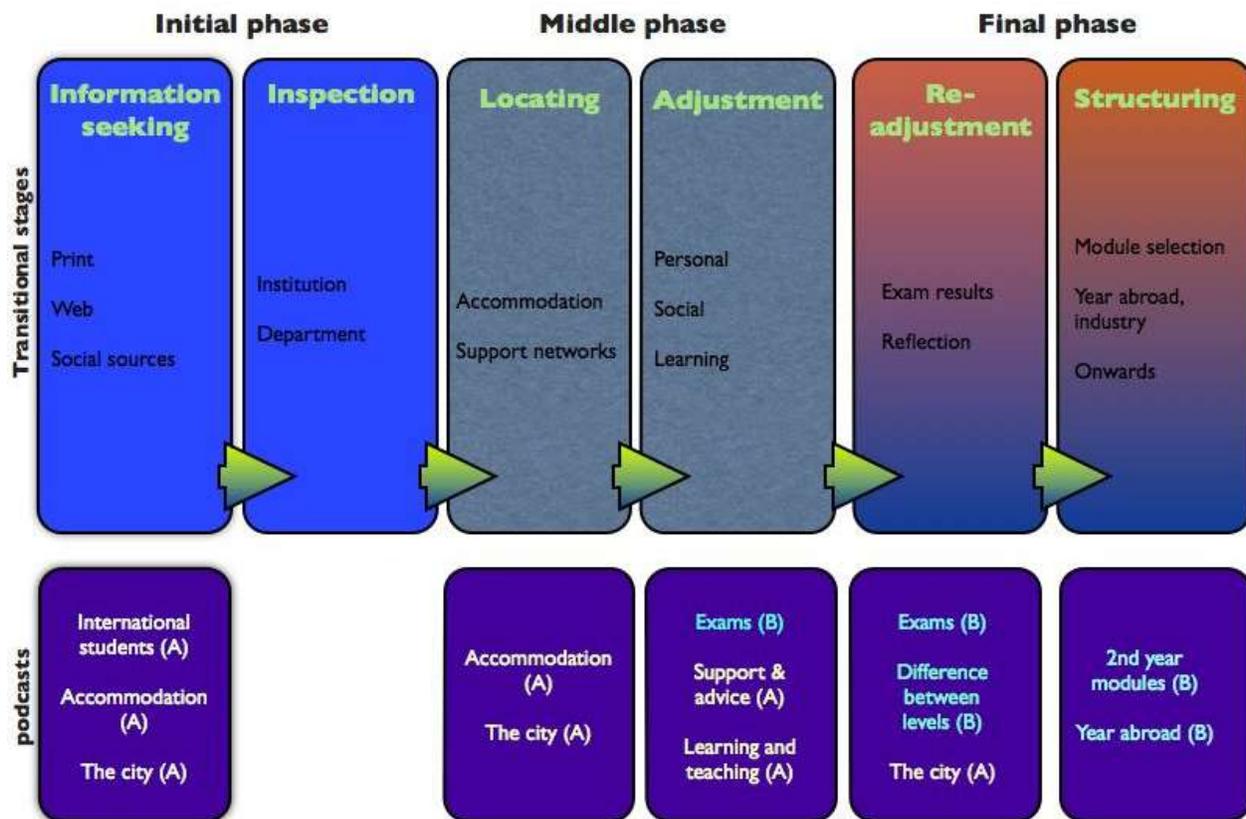
Fig. 5: A model of incorporating podcasts to support the HE transition process

We suggest that the models depicted in Fig. 5 could be useful in making decisions on developing podcasts to support transition. The model helps us first focus on the key stages of transition that are most important in particular contexts before allocating resources to develop podcasts. After identifying the stage or stages of transition, then we can proceed to the lower layer of the model and consider the content that would be covered in each of the podcast, to support the transition stages identified. This model of making initial decisions on podcasts to support transition process can be used alongside the ten-factor podcast design model that we have developed through our previous IMPALA study (see Edirisingha, Salmon and Nie, 2008, pp. 153-168).

5. Conclusions

We carried out the IMPALA4T research study to examine how student-created podcasts can support new HE entrants' transition from schools and colleges to university, and for those already some way into their first year in making a successful transition into and within the higher education environment.

From the analysis of our evidence outlined above, it is clear that the podcasts created for IMPALA4T project covered a range of issues with which the students interviewed had problems, both at the point of entering the university and during their first year of study. It is also clear that existing sources of information and guidance available to the students contained many limitations, leaving a gap that can be filled by different materials or programmes designed to aid students in their extended transition into higher education.

As shown in Section 4.5, the interviews demonstrated that students believe the hot knowledge contained within the podcasts could serve a number of roles within their process of transition. These included conveying new information and perspectives; offering advice regarding positive behaviours; and the reinforcement of existing knowledge and behaviours; and the provision of emotional reassurance. In each case, the status of the podcasts as sources of captured hot knowledge and the fact that all the information in the podcasts was drawn from students' direct experience, meant that many students interviewed were more willing to integrate the information and advice into their process of transition.

Overall, this suggests that student-created podcasts can fulfill a useful role when cultural capital is inadequate to support transition, especially at the final phase of the transition process (see Fig. 2). Our interviews showed that even when students had access to cultural capital to aid their transition to HE (most of which from at least one family member with experience of studying at university), such cultural capital was not useful to prepare them for studying in the specific environment of courses (in our case the subject of Biological Sciences at a particular university). Students' interviews showed that podcasts provided useful information to prepare them for this advance stage of transition.

Our interviews with students also revealed that potential sources of information and advice were neither ubiquitously available to all students, nor properly utilised by every student. The interviews revealed that many students could not identify readily accessible, reliable sources of informal knowledge and advice (which many of them suggested that they would find useful). Podcasts, incorporating knowledge and experience of students who had already made successful transition into HE, have the potential to fill this gap.

In this sense, in reference to the core concern of the IMPALA4T project, the podcasts, particularly as sources of captured informal knowledge and experience, did help the students in their process of transition. In fact, as was shown in Section 4.5, the students attributed particular legitimacy to the podcasts on the very grounds that they were a relevant source that provided informal knowledge and the opinions of their peers who had already experienced similar situations.

The legitimacy placed upon the availability of such knowledge in the podcasts was not in any way dimmed by the fact that academic and technical staff members were involved in the production process. None of the students interviewed said anything negative regarding the fact that the students' voices had been cut and edited together. In fact, the only comments made were that the multiplicity of voices provided made the podcasts more relevant.

Of course, it may be suggested that there is a risk that such hot knowledge, being unofficial and based on subjective experiences, may contain distortions, and that, consequently, there is a risk that the podcasts will do more harm than good. However, the students treated that information with some caution; they acknowledged that much of it may be subjective and rooted in individual opinions, and placed those opinions in the spectrum of information available to them. In many ways this behaviour is similar to the category of 'Doubt' (as opposed to the more negative 'Suspicion' and more positive 'Acceptance') described by Ball and Vincent (1998) in their analysis of the use of information from 'the grapevine' when parents choose schools for their children. The behaviour in that category entails some reliance upon the information obtained from the grapevine, but recognition of its fallibility and the need to use it as 'one factor amongst many' (Ball and Vincent, 1998; 385). This is not surprising, and indeed to be expected of intelligent students who are educated to critique information. In fact, it can be argued that one of the most important aspects of transition to HE is to develop this ability to evaluate and use information.

6. Recommendations

Using the transition model

The model depicting how podcasts could be incorporated into the HE transition process (Fig. 5) provides a systematic approach to making decisions about developing podcasts to support transition. It puts the primary focus on the key stages of transition that are most important in particular contexts before deploying resources to create podcasts. After identifying the stage or stages of transition, we can proceed to the lower layer of the model and consider the content that would be covered in each of the podcast, to support the transition stages identified. This model of making initial decisions on podcasts to support transition process can be used alongside the ten-factor podcast design model that we have developed through our previous IMPALA study (see Edirisingha, Salmon and Nie, 2008, pp. 153-168).
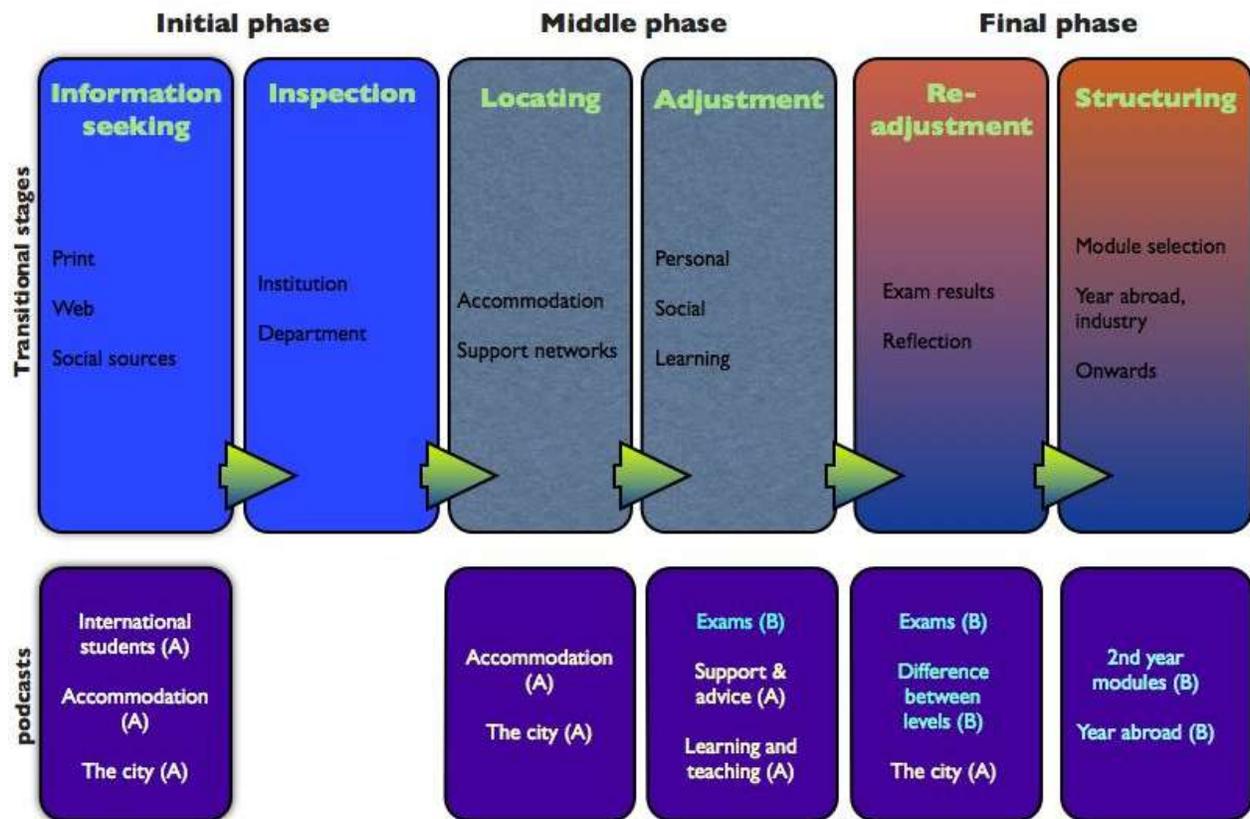

Fig. 5: A model of incorporating podcasts to support the HE transition process

Updating the content of podcasts

Once the podcasts have been developed and made available to students, their content remains static unless they are updated, which can be resource intensive. 'Hot knowledge' captured from a group of students at a particular point in time may not be updatable either. Some of our students however indicated that they wished that certain points made in podcasts could be elaborated and/or to have tutors' views on these points alongside students' opinions. Indeed, one student suggested that all the podcasts should have some commentary from lecturers or module convenors on them to provide more official and more formal information.

These objectives could be achieved by incorporating Web 2.0 tools to add comments (such as though a blog or a wiki) for podcasts. A comments facility can make podcasts more lively (rather than their current static state as a sound file to be downloaded or to be opened from a web browser), with on-going commentary by tutors on important issues and by other students who might elaborate some of the points made in the podcasts.

Further research

Our study found that students believe that podcasts provide them with some benefits in their process of transition into HE. However, given the small number of students from one academic department interviewed in this pilot project, it would be useful to conduct a larger study representing different academic disciplines, from a wider cross section of HE institutions, to examine the applicability of our findings to the wider HE sector.

With the growing numbers of students using social software and networking tools, we can envisage that there will also be other ways that hot knowledge about topics such as transition could be presented to students, for example, through blogs (Glasgow, 2009), or peer mentor systems (Edirisingha, 2009). Further research into how we might combine podcasting with other types of web 2.0 technologies (for example, combining the information presented in podcasts with comments written by students using blogs or wikis, as indicated above) may demonstrate the value of a range of web 2.0 technologies for supporting transition.

Previous studies have attributed the advantages of podcasts, to some extent, to the specific characteristics that they possess: content for listening, and the ability to download sound files for personal digital devices, and the ability to use them on location (Salmon and Edirisingha, 2008). An investigation of the preference for listening to information rather than reading it, particularly with regard to transition related issues, would be useful in developing institutional strategies to support transition.

Helping students to make best use of podcasts

This study has suggested that podcasts can be of some benefit, especially where other potential sources of informal knowledge are absent or underused. However, if such podcasts are generally introduced, this should follow a broader survey to establish the technological skills and proclivities of the student body. It may also be useful to provide these alongside other sources of informal information to ensure that those students that are less inclined towards the use of podcasts are still fully supported throughout their transition into higher education.

7. Appendices

7.1   Appendix 1: Dissemination activities

We have carried out the following dissemination activities:

Dates	Event and venue	Title (if applicable)	Presenter(s), authors
July 2008 – to date	IMPALA4T webpages within the IMPALA website	www.impala.ac.uk	Matthew Mobbs and Palitha Edirisingha
July 2008	Type A podcasts made available via an open website. Awareness of the website amongst all schools and colleges associated with GENIE CETL and CULN network. Three colleges have adopted the Type A podcasts to use with their students.	An openly accessible website www.startinguni.info	Chris Cane, Matthew Mobbs and Palitha Edirisingha
July 2008 – to date	National and international conferences (e.g., Leicester Learning Futures Festival 2009, EDEN 2009, ALT-C 2008 and 2009, Online Educa 2009)	Included in keynote addresses	Prof Gilly Salmon
Aug 2008	A Literature review on students' transition issues and the potential of podcasting to address them.	Podcasting for student transition in higher education – a review of literature	Robert Cane, University of Leicester.
30 Jan 2009	A one hour internal seminar at the School of Education, University of Leicester	A work-in-progress report from the IMPALA4T project	Samuel Nikoi
24 Feb 2009	A one hour presentation at the Higher Education Academy's 'Podcasting for Pedagogic Purposes Special Interest Group' meeting at the University of Leicester.	Informal Mobile Podcasting And Learning Adaptation For Transition (IMPALA4T)	Samuel Nikoi, Chris Cane and Palitha Edirisingha
02 Apr 2009	A Poster presentation at the 'Shock of the Old conference', Said Business School, Oxford University.	Student-created podcasts to support transition from school to university	Palitha Edirisingha, Samuel Nikoi and Chris Cane
10-13 June 2009	A Paper presentation at the EDEN Conference, Gdansk, Poland.	Renaissance of audio: podcasting approaches for learning on campus and beyond.	Palitha Edirisingha, David Hawkridge and John Fothergill
16-17 June 2009	Presentation at the Science Learning and Teaching conference run by the Higher Education Academy Bioscience & Physical Sciences Subject Centres, Heriot-Watt University, Edinburgh.	Podcasting the student voice - a novel approach to support student transitions in higher education.	Chris Cane and Palitha Edirisingha
30 June - 2 July 2009	A paper Presentation at the Higher Education Academy 2009 Conference,	Using technology to support student	Chris Cane and Palitha Edirisingha

	University Place, University of Manchester.	transition into higher education.	
8 - 9 July 2009	A keynote address at the conference 'Encontro sobre podcasts' in Braga, Universidade do Minho, Portugal.	A podcasting framework for teaching and learning in Higher Education'	Palitha Edirisingha
16 July 2009	An external seminar at the 'E-learning community event' at the Open University.	Research and developments in podcasting - IMPALA projects	Palitha Edirisingha
8-10 September 2009	A paper presentation at the ALT Conference, Manchester	Podcasting student voices to support transition from school to university	Palitha Edirisingha, Samuel Nikoi, Chris Cane and Robert Cane
2 – 4 December 2009	Paper presentation at the Online Educa Conference, Berlin, Germany	Podcasting hot knowledge to support student transition from school to university	Palitha Edirisingha, Chris Cane, Robert Cane and Samuel Nikoi
2 – 4 December 2009	Content included in a 90-minute Media Zoo Café session at the Online Educa Conference, Berlin.	Podcasting: IMPALA projects	Palitha Edirisingha
Nov – Dec 2009	All Type A and a selection of Type B podcasts were made into Open Educational Resources (OERs) through Leicester's OTTER project. http://www2.le.ac.uk/departments/beyond -distance-research-alliance/projects/otter	Podcasts for transition into Higher Education	IMPALA4T project team and the contributing students
Ongoing	Two journal papers based on the findings from Type A and B podcasts in preparation		Palitha Edirisingha, Chris Cane, Robert Cane and Samuel Nikoi

7.2 Appendix 2: IMPALA4T Steering Group members

1. Gilly Salmon (Chair)   Professor of e-learning and Learning Technologies, BDRA, University of Leicester

2. Christine Fyfe   Pro-Vice-Chancellor (Students), University of Leicester

3. Mantz Yorke   Professor of Higher Education, Liverpool John Moores University

4. Annette Cashmore   Director, GENIE CETL and Professor of Genetics, University of Leicester

5. David Hawkridge   Visiting Professor, Beyond Distance Research Alliance, University of Leicester

7.3   Appendix 3: Literature review on student transition issues and the potential of podcasts to support the transition process

Podcasting for student transition in higher education – a review of literature

Rob Cane, University of Leicester.

According to a House of Commons Select Committee Report (2001), one in six students entering Higher Education in the UK in 2001 was likely to withdraw from their course. Such attrition rates in higher education are clearly of particular concern and are the subject of a wide range of literature. Thomas (2002) lists seven factors influencing student retention: academic preparedness, academic experience, institutional expectations and commitment, academic and social match, finance and employment, family support and commitments, and university support services. The National Audit Office (2002) has also produced a similar list of reasons for non-completion. Tinto (1975) found that the process leading to a decision to withdraw begins with an incompatibility between the background of the student and the institution, which leads to poor academic and social integration on the part of the individual. This, according to Tinto, is influenced by such factors as starting ability, gender and class. Indeed, Laing et al (2005) noted that students from non-traditional backgrounds tend to have lower retention rates than those from traditional backgrounds (generally those with a family history of entry into higher education). Research has shown that groups such as those who found their course through clearing and students from the lowest social groups find it particularly difficult to get into and adapt to higher education (Baxter and Hatt, 2000; Connor and Dewson, 2001; Walker et al, 2004). As Walker et al (2004) suggested, given attempts to widen participation in higher education, it is necessary to address such issues surrounding student retention.

Student transition to Higher Education

One of the most important phases in the student career is that of transition, both into and within higher education (NAO, 2002). It is at this point when many of the factors influencing student retention come to the fore. With a stream of new pressures (financial, academic and social), the period during which a student is starting university can be incredibly stressful, and such stress often leads to a significant reduction in academic performance, and can, eventually, lead to the student dropping out (Robotham and Julian, 2006; Chan, 2001). Chan and Lee (2005) have noted that much of this stress is reduced when students are clear about exactly what they have to do in any given class. As such, they hold preparedness for each class to be an important factor in successful transition. Indeed, Byrne and Flood (2005) identified expectations that do not cohere properly with reality, and a consequent lack of preparedness, as prevalent amongst poor performers, whilst Scott and Graal (2007) identified a misunderstanding of academic expectations, and, specifically, the level of attainment necessary in examinations, as key contributing factors to failure amongst first year bioscience students. This also seems to hold true for the subject matter studied as well as institutions and the requirements of higher education more generally. Tanimoto et al (2002) suggested that students have 'facets' of knowledge, with a certain understanding of concepts, but not necessarily a complete or completely correct one. Others have noted such preconceptions in subjects such as computer science, and Newtonian physics (Powers and Powers, 2000; Clement, 1982). The problem is overcoming such preconceptions.

Ozga and Sukhanandan (1998) have noted that, although much of the literature examines the issue in terms of variables relating to the background of the student (nature of previous education, class, gender etc.) and in terms of what the student is lacking in order to be properly compatible with the institution, it is necessary to identify the student as part of a social

environment which includes interaction with the institution itself, and examine how that environment can be transformed to improve the choices made prior to starting university, aid transition and raise retention rates. In such a vein, Reay et al (2001) and Thomas (2002) stressed the importance of the institutional habitus, which consists of the embedded practices and values mediated through and present in the culture of the institution. In order for a broad range of students to flourish, this institutional habitus must be diverse and inclusive of different cultural backgrounds and it must be adequately and accurately understood by new and potential students, which means that the institution itself must adapt its practice to address the misconceptions born from non-traditional backgrounds. In other words, it must be recreated so that it is coherent with the personal habitus (the practices and values of the individual determined by their environment, including class, education and family) of each student (Thomas, 2002).

Interventions to support transition
The solutions to this problem most frequently take the form of written information and formal study skills courses. For example, the University of York's Department of Biology provides a leaflet to all future undergraduates detailing course options and what is to be expected of the teaching, which has been shown to be useful (Cook et al, 2005). In terms of study skills courses, the University of Leicester, for example, has a Student Support and Development Service, which offers a wide range of formal study skills courses through its Student Learning Centre, and the University of Glasgow run the Top-Up Programme for 17 and 18 year olds from schools with lower higher education participation rates (University of Leicester, 2008; and Walker, Matthew and Black, 2004). Mentoring programmes, in which existing students provide guidance to new students on all aspects of university life, also exist across the higher education sector (For example: McCormick et al, 2006). These programmes involving current students provide an element of 'hot knowledge' that is absent from the more traditional approaches to addressing transition. Hot knowledge is informal knowledge provided by those considered to be social equals in a similar situation who are without any vested interest in the content of the knowledge transmitted (Ball and Vincent, 1998). Thus, it is often seen as more trustworthy than the more formal knowledge provided by the university and its staff. In fact, in studying the process of choosing higher education institution, Hutchings (2003) has shown that students specifically tend to trust information about the higher education experience more when it comes from their peers. Yet, modern students do not only want their knowledge to be 'hot'.

Downes (2005) has described the modern student as one who wants their information 'on-demand' and provided at 'twitch speed'. This, he argues, is done primarily through the technological advances of the internet. Expanding upon such ideas, Siemens (2005) has created a theory of 'Connectivism' in which the important element of education is not the traditional building of a stock of knowledge, but becoming connected to the network through which knowledge can be quickly found and learning to quickly and thoroughly distinguish useful information from false or useless information. This network is, again, primarily related to technological innovations. Particularly important in this respect is the concept of Web 2.0. There is not absolute agreement over the definition of the term 'Web 2.0', but, roughly speaking, it is a trend towards the use of the internet in increasingly more interactive ways, with user created content being an important element (O'Reilly, 2005). In this vein many institutions provide student blogs detailing the experiences of current students so that potential and new students may learn from them (see, for example, Williams and Jacobs, 2004; and University College London, 2008). These blogs provide hot knowledge through a contemporary medium that is very much part of the 'on-demand' world of the modern student. However, useful as these projects may be, the realm of technology useful in education has expanded beyond them bringing with it new possibilities for flexible and informal engagement with future students and those struggling to make a transition.

Podcasting
Recently, much literature has focused upon the concept of mobile learning, or mLearning. This can be broadly understood as learning through materials that can be used anywhere, as opposed to learning undertaken in a traditional static context, such as in a classroom, at a computer or in a library. As Winters (2006) made clear, early work on the concept tended to define it on the technological basis of portable devices (PDAs, iPods, mobile phones etc.) being used for educational purposes, whilst less technologically focused literature has focused on the impact of mobility on the learning experience and the augmentation of traditional static pedagogic practices.   One of the most prevalent mLearning activities is the use of podcasts, which are not only mobile and informal, but can include many of the benefits of Web 2.0 technologies described above.

Podcasts are digital audio recordings (typically mp3 files) usually distributed by means of an RSS feed, which enables users to subscribe and automatically receive the next episode (Salmon et al, 2008). Once downloaded, these files can be transferred onto a portable mp3 player and listened to in any location or they can be listened to using an mp3 player on a desktop or laptop computer. In the last few years, podcasting, and specifically its use in education, has become increasingly more popular as new and more accessible software (for example, free audio editing software Audacity) and services (for example, online hosting services and services to create RSS feeds) have become available. In 2004, Duke University and Osaka Jogakuin College even distributed iPods to incoming students (McCarty, 2005). Indeed, iPods now have a 'social cachet' that allows them to be powerful educational tools (Chan et al, 2006). Furthermore, as Chan and Lee (2005) have shown that much of the literature demonstrates significant advantages to be gained from the presentation of information in an audio format. Information presented through audible media, for example, can provide a connection with the person presenting the information and a better sense of their meaning through tone and inflection, and can be used whilst the hands and eyes are engaged in other monotonous tasks. Tynan and Colbran (2006) have shown that students exposed to podcasting in education, place a great deal of importance on it as a support for their learning.

The most obvious use of this technology in education has been the recording of lectures (including, most frequently, public lectures) for mobile consumption by students, and, often, the public more generally (see for example: Colman, 2006; and Apple Inc., 2008). This has allowed lectures to be distributed 'on-demand', to be listened to when desired, as often as desired, and in a manner consistent with the media environment with which most students are comfortable (Downes, 2005). However, this is amere translation of traditional teaching methods into a mobile context and fails to fulfil the full potential of its medium: portable, easily created audio files available on-demand and suitable for use for short periods of time whilst undertaking other, 'mindless' tasks (Salmon et al, 2008).

Other pedagogic uses of podcasting have avoided such pitfalls by providing supplementary information to lectures in a style more appropriate to the medium. Taking advantage of readily available and easily used production tools, most of these podcasting initiatives involved the use of student created content to produce short podcasts often involving potentially engaging, short discussions of topics as opposed to the formal delivery of recorded lectures. Indeed, Chan and Lee (2005) refer to these as 'talk-back radio style' podcasts. For example, second year students at the University of Leicester created podcasts on the ethics of genetics for first year students, and students at Swarthmore College have created podcasts discussing passages from novels (Cane and Cashmore, 2008; and Evans, 2006). From the literature, two main benefits of the use of student created content can be deduced. Firstly, it provides opportunities for the students to develop their abilities in 'meta-cognitive thinking' and provides opportunities for such thinking and reflection (Chan et al, 2006). And, secondly, it uses 'hot knowledge', which may be more easily and readily assimilated by the listeners than information gained from the 'cold' source of

the lecturer (Ball and Vincent, 1998). When these benefits are considered alongside the general benefits of mLearning technologies, the use of podcasts in education is clearly an interesting and potentially important new development.

These benefits, particularly the presentation of 'hot knowledge', make such podcasts, potentially powerful tools for aiding student transitions. Such 'hot knowledge' is not only more readily accepted by future students, but it can also help to integrate students into the University's community and bridge the gap between the student and the institution (Lee et al, 2007). By presenting this 'hot knowledge' in a manner that allows flexible use and meshes with prevailing patterns of media consumption and information gathering, podcasts are potentially more likely to be used and trusted by incoming students than traditional materials (Downes, 2005).

Podcasting to support transition
Some universities already use podcasts for the purposes of aiding transition and increasing student understanding of the nature of higher education. Most of these, however, are focused more on promotion of the university or department than on bridging the gap between student expectations and the reality of higher education (see for example: Brunel University, 2008; University of Warwick, 2008; and University of Nottingham, 2008). Perhaps the best example of the use of podcasts in the context of transitions is a project undertaken at Charles Sturt University in Australia. This project started out as just a pilot group, but now encompases a wide range of uses of podcasts (Chan and Lee, 2005; Chan et al., 2006; and Lee and Chan, 2007). The first podcasts used at Charles Sturt University aimed to aid the transition of students in the computer sciences, where misunderstandings about what exactly the subject entails abound. These student-generated podcasts were listened to before classes in order to address these misunderstandings and ease transition into the relevant mode of studying. These podcasts were followed by many others including interviews with textbook authors, guidance and feedback on assignments, and 'topic trailers'. Analysis of these podcasting efforts has shown that they were of benefit not only to the students listening to them, but also to those creating them (Chan et al., 2006). However, whilst these podcasts have included some coverage of general issues of transition into a new institution, they do not seem to have covered many of the key issues facing new students outside of specific course content, such as accommodation or generally settling in to the social environment.

IMPALA4T project

Thus, IMPALA4T is investigating the use of short podcasts consisting of students who have recently made the relevant transition presenting their own experiences on a number of subjects important to transition into university, and, later, between levels within it. This will take place within the University of Leicester's School of Biological Sciences, and will deal primarily with transitioning into the study of the biological sciences in higher education, which, as noted above, can often prove important to the academic development of the student (Scott and Graal, 2007). However, much of the information provided about life at university will be suitable for students in any discipline.

7.4   Appendix 4: References

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7.5   Appendix 5: Acknowledgements