

Learning and Teaching Enhancement Project Report, June, 2015
Project Title: Student-Led Virtual Guides of Mechanical and Chemical Engineering
School & department: School of Engineering and Physical Sciences

Please be aware that this report will be publicly available on the University's webpages
 Please **complete in Word** and return to Mirren.McLeod@hw.ac.uk (reports not completed in Word will be returned)

1	Names and Heriot-Watt University contact details of project team):			
	Role	Title, Name & Job Title	E-Mail Address	Campus, School, Department
	Lead & Report Author	Dr Tadhg O'Donovan, Assistant Professor	T.S.O'Donovan@hw.ac.uk	Edinburgh, EPS, Mechanical Engineering
	Focus Group Organisation	Dr Gillian Thomson Deputy Director of Learning and Teaching (International)	G.B.Thomson@hw.ac.uk	Edinburgh, EPS, Chemical Engineering
	Research Group Virtual Tour	Dr Mehdi Nazarinia Assistant Professor	M.Nazarinia@hw.ac.uk	Dubai, EPS, Mechanical Engineering
	MSc Level Transition	Dr Gudrun Kocher-Oberlehner Teaching Fellow, EPS	G.Kocher@hw.ac.uk	Edinburgh, EPS, Mechanical Engineering
	Recruitment	Dr Firas Ibrahim International Officer (Middle East and North Africa)	Firas.Ibrahim@hw.ac.uk	Edinburgh, Recruitment and Admissions Services
	Mechanical Engineering Virtual Tour	Dr Peter Cumber, Senior Teaching Fellow & Admissions Tutor	P.S.Cumber@hw.ac.uk	Edinburgh, EPS, Mechanical Engineering
2	Key words:			
	Student-led; podcasting; recruitment; research environment			
3	The problem being addressed, with background and context:			
	<p>The project will be student led and will focus on three transitional areas in Mechanical and Chemical Engineering:</p> <ol style="list-style-type: none"> i. 2nd Level students as they go through the application process to tertiary education through registration, induction and semester 1 courses ii. Undergraduate engineering students as they take on individual students project work; this will also embed a previously funded and ongoing project on a Cross-Campus Collaboration Research Group project iii. Prepare students for MSc Level degree programmes <p>What is proposed is a virtual tour in a podcast form that will be produced by existing undergraduate students and assisted by co-applicants to meet the respective demands of the three transitional areas identified above. The project team brings together a wide range of experience and expertise, particularly in recruitment, admissions, student orientation and teaching. Together, some of the "perceived" transitional issues facing students were identified and the project evolved. Of particular importance to the team is the "student-led" approach, as it was recognised that what we perceive to be transitional issues may not be as significant to the students and vice versa. It is also clear that in a podcast format, students are more likely to be able to effectively address the key transitional issue in an engaging manner.</p>			

4 **Project overview & aims:**

The project aims and objectives are detailed here with a brief description of the associated work-package and deliverables.

- 1. Recruit Focus Group:** To fully understand the challenges faced by applicants and students as they progress from 2nd level education and through their University career, a focus group will be formed students from a wide range of backgrounds. It is anticipated that the group will include students from different backgrounds (Home, RUK, EU and Overseas and Dubai Students) who have had different educational pathways (1st Year and direct entry to 2nd, 3rd and MSc level). Class representatives from all undergraduate years will be invited to participate.
Deliverables: A list of challenges faced by students as they make the transition to University Life. Questions for a survey to poll a wider cohort of students.
- 2. Online Survey:** While it is anticipated that the focus group will help us understand many of the challenges encountered by individuals and their transitional experience, one of the main outcomes from the focus group will be a set of questions/survey topics for an online survey to poll a much wider range of viewpoints. This is something that can be used to target existing cohorts of students within the University but also will be expanded to schools through our Recruitment and Admissions Office both in the UK and Internationally. The survey results will be analysed and virtual tours designed to mitigate transitional issues in Mech and Chem Eng
Deliverables: A comprehensive survey of issues affecting transition to Engineering degree programmes. It is anticipated that wider issues of transition to University will also be identified; these will be collated and reported to Recruitment and Admissions, Welfare office etc.
- 3. Create Virtual Guided Tours:** Analysis of the data will be used to design virtual guided tours to target key areas to improve the transitional experience. Again students will be recruited, most likely from the original focus group, to develop the podcasts. This process will be facilitated by co-applicants to this project to direct, and edit the podcasts. Hyperlinks will be added to guide “viewers” to accompanying resources such as course notes, sample data, design specifications etc.
Deliverable: 5 Virtual Guided Tours to Mech and Chem Eng in both Dubai and Edinburgh
- 4. Cross-Campus Collaborative Virtual Guided Tours:** Students within the UG Research Group on both campuses will be shown samples of the virtual tours and similarly facilitated to create their own virtual tour after they complete their individual research project.
Deliverable: 10 Virtual Guided Tours to Research Projects (1 for each project student)
- 5. Dissemination:** The virtual guided tours will be made available on a YouTube channel, on Vision and through Dropbox for the Research Group. Applicants can be guided to the YouTube channel via promotional material/flyers at Careers Fairs in the UK and internationally through the activities of the Recruitment and Admissions Office, but also at University Open days. Further dissemination activities would include social media (Twitter and Facebook) which now have extensive following for HWU Mechanical Engineering. It is also anticipated that the data collected from the focus group, survey, assessment work-package (see below) and a further survey of new cohorts of students will be collated and presented at a QAA conference and maybe contribute to a journal paper. The work will, of course, also be presented at the HWU Learning and Teaching Conference.
Deliverable: Wide exposure of the virtual tours to applicants and UG students; 1 conference publication and potential for a journal publication

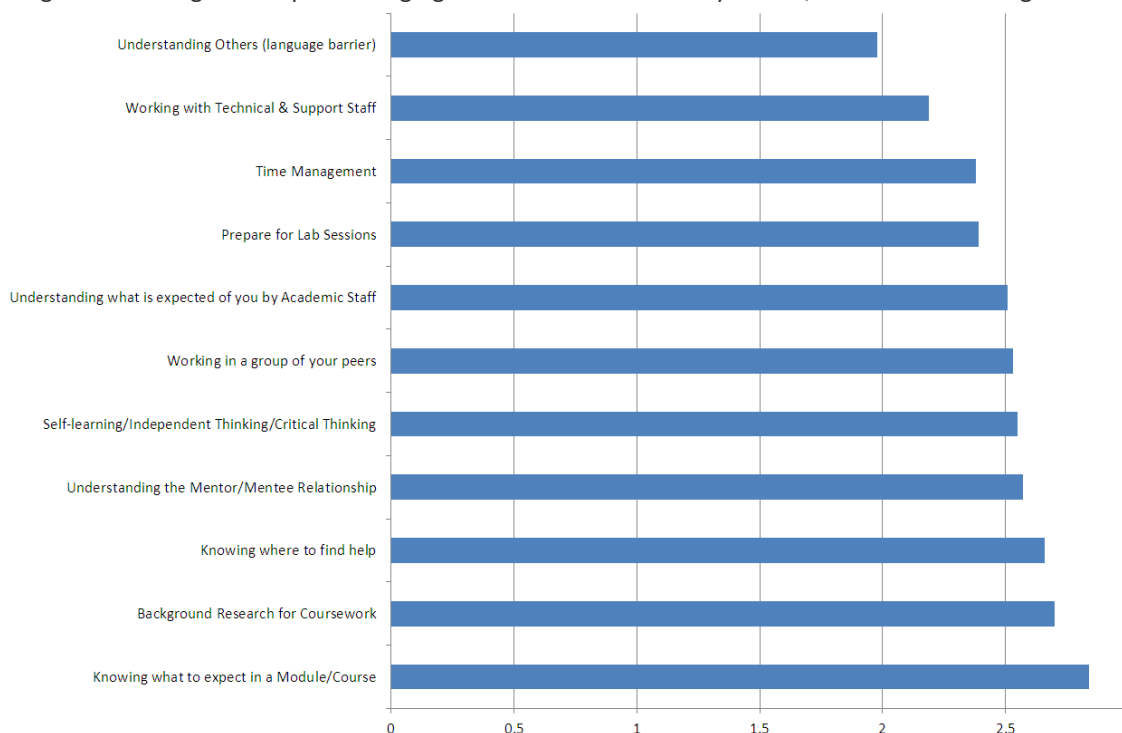
Student Transitions

6. **Assessment:** In order to assess the impact of the project statistics can be gathered from “link clicks” and “views” data. This quantifiable data will be readily available through the various archives for the podcasts, but assessment of the quality of the impact will only be possible at the beginning of the new academic year where students will be polled about their transitional experience, if they engaged with the Virtual Tours. Data gathered will be compared to the original data polling from stage/objective 2 of the proposed project.
- Deliverable:** A report on the impact of virtual guided tours on the transitional experience

5 **Activities and details of project steps taken to achieve aims:**

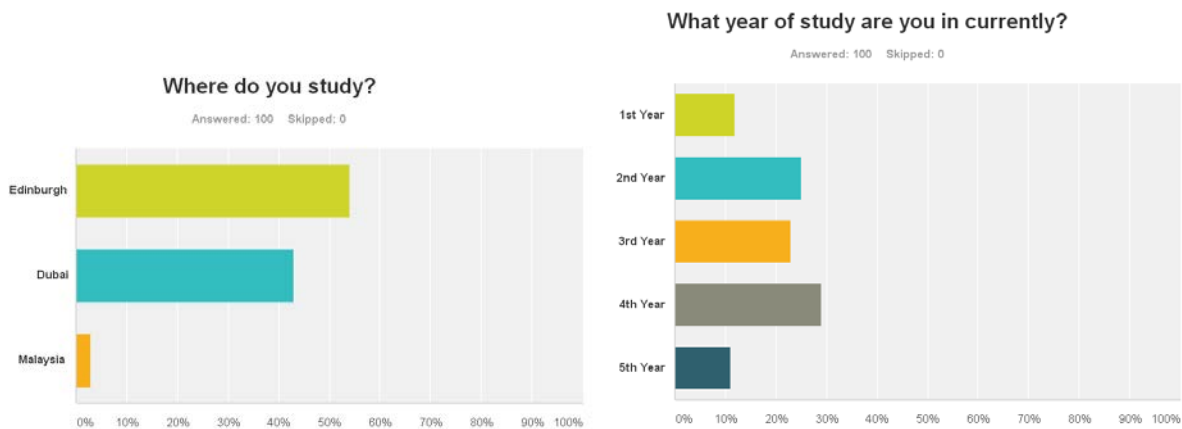
To date objective 1 and 2 have been completed in full and objective 3 is in progress. Some of the findings are detailed here:

1. **Recruit Focus Group:** Class Representatives and School Officers for Mechanical and Chemical Engineering (Year 1 -5 and MSc) were invited to attend a focus group. The focus group was asked to reflect on their own experience and to identify potential transitional issues affecting them and the cohorts they represent throughout their university experience. The focus group was attended by 16 students and included students from all years (UG and MSc) as well as a broad range of backgrounds (Home, RUK, EU and Overseas and Dubai Students). Students were keen to propose solutions, however were continually guided by to simply identifying the problems/issues. A list of challenges faced by students as they make the transition to University Life was compiled as a result and this was brought to the student body through an online survey.
2. **Online Survey:** Students were asked “When you first came to University, to what extent did struggle with the following:” and could give a response ranging from “Not at all” to “Very much”; here are the findings



Student Transitions

Based on a weighting from 1 to 5, “Knowing what to expect in a Course” was identified as the most critical transitional issue affecting students.



Further data analysis can be conducted to reveal the transitional issues specific to students in a particular year or at one of our three campuses.

3. **Create Virtual Guided Tours:** Based on the focus group, the online survey and the original objective of the project, students were asked to create 5min interactive podcasts of their 4th Year UG Project. Four students, who also participated in the Cross-Campus Collaboration Research Group project, have volunteered (1 in Dubai and 3 in Edinburgh). The students were asked to start with a story board which was reviewed by members of the project team. Once we were all in agreement, the students were given a demonstration of the equipment available to them and allowed an afternoon of filming and editing. The results of their efforts are now YouTube, with restricted access to project members. We are current reviewing and identifying good practice, before progressing with further podcasts. Some of the feedback to date is as follows:

- Sound Quality is intermittent
- Structure can be improved
- Students have a tendency to teach/lecture instead of demonstrate
- Conversation style is particularly effective – especially when talking directly to the new student

These issues and more will be fed back to improve the production quality of future podcasts

6 **Key points including challenges your team may have encountered:**

Originally, it was anticipated that students could produce podcasts of the quality and structure required without much guidance/feedback and help. However the few pilot podcasts have helped to identify good and bad practice. This will be collated to inform the process of producing podcasts in future. YouTube does not allow hyperlinks to websites carrying advertising, so there is some question regarding the integration of our current data storage techniques (Dropbox). This is something under review and a possible solution would be to store data on a HWU domain.

7 **Describe specific project outputs so far:**

The following tangible outputs have been achieved to date:

- A focus group to identify transitional issues affecting students
- An online survey to assess the scale of the transitional issues

Student Transitions

	<ul style="list-style-type: none"> A 4 podcast pilot to determine best practice in Virtual Guides
8	<p>Please describe how your project has contributed to the Heriot-Watt University strategy and priorities for Enhancement:</p> <ol style="list-style-type: none"> Shorter time to completion for Post-graduate Research students (PGR) Improved retention and progression of undergraduate students: <p>Research led teaching is a core value with the School of Engineering and Physical Sciences and in Heriot-Watt University as an institution. This project is an innovative method of supporting a research led collaborative project. The impact of this project will not just be for the student who is transitioning into a research group, but also for the student who is creating the virtual tour through their research methodology and results. Record keeping and archiving is of high importance in any organisation to ensure work is not duplicated but that progress is made continuously as projects transfer between students (UG and MSc).</p> <p>Much progress has been made in recent years with respect to the quality to reporting of UG and MSc project outputs. The method of assessment has moved from large reports (circa 80 -100 pages) with detail, often chronological, of “what was done” in a project to a system where students now produce a research article which focuses on “what was found” and the methodology used in the research project. While this was a significant step forward in assessment terms, the reports remain as an assessment tool and do not serve the purpose of transitioning students into new projects. The reports are inadequate for students taking over from previous work done. This project will allow students to effectively communicate their achievements in their project for assessment purposes, but will also be an invaluable resource for the next student taking up the project and progressing the research area.</p>
9	<p>Describe how you are sharing good practice within Heriot-Watt and beyond (e.g. plans for papers, attendance at conferences):</p> <p>The virtual guided tours will be made available on a YouTube channel, on Vision and through Dropbox for the Research Group. Applicants can be guided to the YouTube channel via promotional material/flyers at Careers Fairs in the UK and internationally through the activities of the Recruitment and Admissions Office, but also at University Open days. Further dissemination activities would include social media (Twitter and Facebook) which now have extensive following for HWU Mechanical Engineering. It is also anticipated that the data collected from the focus group, survey, assessment work-package (see below) and a further survey of new cohorts of students will be collated and presented at a QAA conference and maybe contribute to a journal paper. The work will, of course, also be presented at the HWU Learning and Teaching Conference.</p>
10	<p>Next steps:</p> <p>The next steps will be exactly in line with the original objectives. Firstly, and based on the critical analysis of the pilot podcast, a number of other interactive podcasts will be developed. The dissemination of the outputs and impact analysis will also be conducted.</p>
11	<p>Additional information:</p>