ABOUT THE PROJECT
Title
Using the Bloomberg Professional Service to Provide Opportunities for *Applied Research Skills* across Business Subject Disciplines
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OVERVIEW
Overview, Aims and Context (the rationale including underpinning pedagogy) (summarise the activity in 2 or 3 sentences, max 50 words)
This project adopted a Problem-Based Learning (PBL) approach, with an emphasis on developing student research skills through providing opportunities for a practical application of real-life data as provided by an advanced research tool, the Bloomberg Professional Service, to assessment projects.
Description (a brief description of the activity; and how you have used innovative pedagogies and approaches in the curriculum design; max 200 words)
The usage of the Bloomberg Professional Service, and Problem-Based Learning (PBL), in and out of a class-based setting, should improve student understanding of the practicality in the real world of developing good research skills. Modules involved in this project, included a research-based-assignment to be completed as an individual or group. These assignments were divided into phases that reflected the progress of the lectures and the sections of the final research report due at the end of a semester. Students solved practical problems, in a formative-feedback class-based setting, as they progressed through a semester. This was to force students to reflect on what they may have not thought to be difficult. Whether students are testing hypothesis, or creating a solution to a real-life problem, when based on their own data collected and analysed they should care more about their results and refer back to the PBL practical problems and feedback provided. Completion of these PBL assignments were vital to providing feedback to ensure students see what errors they were making so they can correct them on a 'no lose' basis, while students are completing their final research report outside the class-based setting. Once students have utilised the Bloomberg Professional Service, an advanced research tool, the next steps were for the students to analyse the material collected and write-up the module research project report.
Design (methodological approach (qualitative and quantitative evaluation))
The evaluation strategy explored students' general understanding of the concept of research and the use of the Bloomberg Professional Service as an advanced research resource / tool. The project's evaluation followed a sequential, explanatory, mixed-methods methodological approach that began with a questionnaire to get a perspective of students' general understanding of the concept of research; what resources did these students use for conducting research before and after joining their programme of study; and impact of any new resources adopted. The questionnaire was followed by focus groups that provided an opportunity for a detailed exploration with a few individuals about developing research skills. Initially, the framework of the Problem-Based Learning (PBL) active-learning approach was determined within each module participating in the project and supporting resources designed. In support of the development of students' submission of a final research report, as either an individual or group, this framework included for the timeline of the modules

involved in the project. Practical problems for solving in a class-based setting, throughout a semester, was designed for feedback to students and reflection on by students. Usage of the Bloomberg Professional Service was included in the timeline of a module and the research work both through the in-class PBL scenarios and wider research project to be completed by a student.

To aide this process, questionnaires, with students, were implemented in modules to gain insight to students' general understanding of the concept of research; what resources did these students use for conducting research before and after joining their programme of study; and impact of any new resources adopted. At the end stage of modules there was a further evaluation through follow-up focus-groups to gain further insight into the sustainability of the effects of the approach over the course of an academic year and beyond; as well as the impact of the adoption of an advanced research tool such as the Bloomberg Professional Service.

Also, conducted was a focus group with those staff involved in facilitating this activity in their modules. This focus group, was to garner opinion and perceptions regarding the impact in their modules of the PBL active-learning approach and the Bloomberg Professional Service resource as an advanced research tool.

Evaluation of information gathered from student questionnaires and staff and student focus groups completed the project. On an ongoing basis, all student and staff feedback, whether through the questionnaires, focus groups or through in-class staff observation, led to any necessary changes being made in the implementation of the PBL active-learning approach and usage of the advanced research tool.

RESULTS

Findings and Conclusions: (provide information on results/findings, evidence and conclusions)

Over the course of the academic year there was a student-completed questionnaire, four student focus groups, and a staff focus group. This project utilised the CME Group Foundation Financial Innovation Laboratory as an active learning space, and with it the Bloomberg Professional Service database as an advanced research tool. This was in support of the achievement of the aim of the project to provide opportunities for the application of, and enhancement of student engagement with, applied research skills across the Business Subject disciplines.

These subject disciplines were very different, in that they included Investment Management (IM) who is seen as a very obvious user of the Bloomberg Professional Service; Human Resource Management (HRM) who is as a less obvious user; and Marketing a lesser obvious user than HRM. The students involved in the project ranged from year-one through to final-year.

A questionnaire and pilot student focus group were conducted to grasp a baseline understanding of these students and their perception of research. The results of the questionnaire and pilot focus group, was for reflection on whether there should be any changes made for the next phase of work in the project and to develop further focus groups with staff and students. In the IM discipline 45 students completed the questionnaire as did in the HRM discipline and in the Marketing discipline 22 students completed the questionnaire. This gave 112 students completing the questionnaire.

For the questionnaire, students were asked to answers questions on a Likert scale of one to seven (one being low and seven being high) on their general understanding of research prior to entering their programme of study. The **median** score for all 112 included students on questions such their level of understanding; research experience; and rating of their

research skills was <u>four</u>. Although, for **final-year** students their **most frequent** answer was <u>two</u> for <u>how much research experience they had *prior* to entry</u> and <u>three</u> for their rating of their <u>research skills prior to entry</u>. For **first-year** students, their **most frequent** score for these two areas were <u>four</u>.

These same questions were asked for how they felt *now*. For both IM and HRM students they had a **median** score in all three areas of understanding; research experience; and rating of their research skills of <u>five</u>.   For the Marketing students, their median score was higher at six in all three areas. In terms of the **most frequent** score for IM students, this was consistent in the three areas with the **median** score at <u>five</u>. For HRM students, their **most frequent** score for research experience *now* was <u>six</u> and rating of research skills <u>four</u>. For the Marketing students, the **most frequent** score was at <u>six</u> consistent with the **median** score in the three areas of understanding; research experience; and rating of their research skills.

One thing that was obvious in the questionnaire results was that students at the beginning of their programme of study rated themselves fairly high in the three areas of their level of understanding; research experience; and rating of their research skills. Whereas for final-year students they had developed an understanding that they did not have much research experience prior to entry to their programme of study and their research skills where not that well developed. All the students included seem to feel that they had developed over the course of their studies in the three areas.

When asked on what resources for research these students used *before* entry to their programme of study the majority, 109 of the 112 students, answered search engines such as Google; and second to this was Wikipedia. Students answered less frequently resources that are academic in nature. When asked what do they use *now*, search engines such as Google were still the most frequent answer but on this occasion the answer was jointly tied with web search-engines that indexes scholarly literature, for example, Google Scholar. Also rated highly for what students use now, second to these resources, were those that are more academic in nature, such as Proquest ABI / Inform Collection and USearch. Less frequently Wikipedia was selected as an answer. Again, this demonstrated the progression, through their programme of study, of both students' research abilities and understanding of research.

Further, when asked has the use of these additional academic resources *impacted on their experience* of *conducting research*, for all students the **median** score was <u>five</u> (the high score on this scale was seven). This was the case also when students were asked whether these additional academic resources *impacted their development of research skills or their competence in conducting research*. For the question of whether the use of these additional academic resources *impacted on their experience* of *conducting research* for IM and HRM students their **most frequent** answer was <u>five</u> and for Marketing students <u>six</u>. The **most frequent** score for the question of whether the use of these additional academic resources *impacted their development of research skills or their competence in conducting research* for IM and HRM students their **most frequent** answer was <u>six</u> and for Marketing students <u>five</u>. This demonstrates the progression of students and their research skills, through the use of additional academic resources. Interestingly, USearch followed by the Bloomberg Professional Service appeared as the most frequent answers to what additional resources impacted.

The pilot focus group, that took place early in the project, also too demonstrated support for the idea that at the beginning of their University studies that students did not have a full appreciation of the term 'research'. The student participants demonstrated that they had a general understanding of the term, some basic level of research skills and limited research experiences. The participants discussed that their prior research experiences were basic

with just using internet searches to gather information. Many of the participants in the group noted that they, at the beginning of their University studies, had a limited understanding of complex research and advanced research skills.   Some of the student participants highlighted the differences between the transitions from school to University. For some that did not have previous experiences with journals, they used Google search for information rather than use of academic sources and industry reports. As a student quoted '*We didn't get the journals. I never knew what journals were until I came here. So, it was a very different aspect to be honest.'*

Student participants in the pilot focus group noted minimal experiences with using more complex research tools and software. Some participants agreed they had *'low level skills'* with regards to research; Google internet searches and other similar search engines were their main source of data collection tools. Nonetheless, with guidance from course lecturers, some participants from the group had begun in the early stages of their studies to use some sort of journal databases and e-books for data collection, for example, online journals, Mintel reports etc. Interestingly, some student participants claimed that at this stage they preferred to gather information from different platforms, for example, social media and other networking sites such as Instagram. They had believed these mediums gave them more up-to-date information, rather than depending on text books (and *magazines*) which they felt could be outdated very quickly.

Student participants found that more advanced research tools, such as the Bloomberg Professional Service, initially quick hard to use. This resulted in some giving up with the tool but for those that kept on using the Bloomberg Professional Service they found it useful and was able to provide information they had never knew could be obtained. As some participants highlighted, '*When you get used to it and use it for a while it was good'* and '*it has definitely changed my experience.'* This indicates that there is a need to be persistent in learning the techniques of using the Bloomberg Professional Service for the software to be useful, otherwise, it could get quite *'overwhelming'* and become *'lost'*. The Bloomberg Professional Service could offer them an advantage of gathering information that they '*couldn't get elsewhere'*. Also, some believed using the Bloomberg Professional Service could give them the advantages of better performance in their module assessments / examinations.

For those that gave up on use of the Bloomberg Professional Service, some suggested that the complexity and sheer volume of data generated was *'overwhelming'* and some even claimed that *'it is absolutely terrible'.* A major issue seemed to be the complicated nature of the software which led too many to be *'frustrated'* and *'could not be bothered'* to continue using it. Therefore, they simply return to Google and other search engines. Other negative responses included the time it takes to log into the system and how it could seem inefficient to generate the information that they wanted in a timely manner. Again, students returned to use of Google to get the information that they were looking for. As one participant described, *'it* (Bloomberg Professional Service) *is a long short cut'* to get what they wanted.

These early experiences of more advanced research tools if not managed have the potential to put students off from advancing their research skills. Student participants in this pilot focus group, felt to avoid this happening there should be more practical demonstrations to allow students to be more familiar with the system and advanced research tools. Maybe more time is needed to go through the process in more detail for them to understand the basics, especially if they are to use the system outside of lecture / seminar time.   A troubleshooting guide or step-by-step instructions may be helpful for students wanting to conduct research in their own time. Simplifying examples used in class may be useful; for students to understand the basics with the guidance of lecturers /

demonstrators. As some claimed that *'the class for it wasn't long enough…and it is hard to learn a process'* (in such short period of time).

First and foremost, in the student pilot focus group, there was a consensus that students will benefit from using the Bloomberg Professional Service, as with other advanced research tools, if more time can be dedicated during class, for example, *'I think we'd need to run sessions on how to actually use it for us to do it.'* Also, a point of contact could be useful if they do have any questions outside of class hours. For instance, as someone suggested, *'if there was someone on campus then maybe I would use it more.'* The needs to be a balance between guidance in class and time for students *'to play around with it'* to familiarise themselves with the programme, for example, *'I just wanted them to stand up there and show me how to do it and then I go and I do it on my computer.'* A generic view from the participants on advanced research tools is that: once they have encountered difficulties with the system, they tend to get *'frustrated'* or *'lose interest'*. Again, a point of contact on campus could be useful as some suggested, *'I think more time with an expert and maybe more formal classes on how to use it would help.'*

The questionnaires along with the pilot student focus group then helped to form the basis for development of the approach being adopted in the project and for a focus group made-up of staff users of the Bloomberg Professional Service with students within this project. The questionnaires and the pilot student focus group also formed a basis for the student focus groups that occurred later in the project's lifespan to evaluate the development of students' applied research skills through the use of advanced research tools such as the Bloomberg Professional Service.

Between these focus groups, staff and students, similar conclusions were reached. For staff, they discussed the challenges and barriers in curriculum and teaching to increase level of research skills. Teaching staff acknowledged and confirmed that research skills are 'taught' to a certain extent in module curricula. The curriculum specifically highlighted and developed research skills through the learning outcomes of modules. However, one of the key issues identified from this focus group was that the message (research skills at every stage of a student's degree) is lost in how this is communicated to students through the module learning outcomes. However, in general, students' level of research skills is still '*very weak*'. Overall, there seemed to be a concern amongst teaching staff on a low level of research skills and students' understanding of research. In this it was felt by the staff participants that there are common issues such as: differentiation between the good and poor students; lack of challenge in what is required from students; and the motivation of staff and students. The quality of some work from students raised questions on whether assessments are reflecting the level / requirements needed for a University degree. The perception of a lack of challenge was felt to result in students delivering the bare minimum to pass some modules. This quote summarises the main concerns of staff:

'But it is very common, even at Masters level, A: they can't come up with a topic, which is horrific, B: can't articulate a research problem, C: apply or select a relevant research methodology. Can't analyse, can't interpret, the quality and then a discussion to show that progression.'

Another point of discussion by staff was the importance of the placement year to the development of students. It was felt that for the majority of students, their level of research skills and self-awareness improves after their placement year. Returning-from-placement students' attitude maybe is a contributing factor to their increased level of research skills. This factor was felt by staff a reflection of these students competing for a first-class honours degree. Together with the experience of working in the 'real world' and therefore an implicit or explicit recognition of the relevancy of what they have been doing at University actually applies to industry. The staff focus group confirmed that the placement year can make a

positive influence to students' research skills. There was felt to be a transformation in student motivation and attitude, post placement, which could ultimately influence their research skills.

A key theme that was derived from the staff focus group was the relevancy of language used to communicate with students by staff. There were suggestions made to change the language around research / soft skills and how to make students realise that they are doing research on a daily basis, '*hiding the vegetables*'. If staff recognise that there is a gap between staff and students in terms of language used, or a miscommunication or even students' mis-interpretation, it can begin to address this gap. There were issues discussed such as '*message is lost*' or '*they switch off*' causing lack of engagement and disconnection. Staff suggested that some language used to deliver the concept of research is somehow disconnected from students' perception of the term 'research'. This disconnection often meant a lack of '*independent*' and '*creative*' thinking that has led to, in terms of the language used, teaching staff having to '*connect the dots*' for students. The staff focus group also suggested in this theme of language that there is a need for clearer instructions and communication to highlight the relevance of graduate attributes to learning outcomes and the achievement of those learning outcomes.

It was felt by the staff focus group that it mattered also who delivered the message that developing good research skills is an important and a transferable skill-set. Having external employers coming in to deliver guest lectures could help to bridge the gap between staff and students in their use of language on research skills. Inviting employers to deliver talks and lectures could service to '*inspire*' to students and demonstrate professional relevancy which relates to building an employability skill-set. External employers could enhance credibility of topics being studied and raise the quality of student work. External employers were perceived to have a different language in describing research skills, within the context of soft skills, as employability skills. Students could then see that it is relevant to build upon their employability skills through research for their future work-life. One staff focus group participant stated '*I don't use the word research, I use the word review and criticise*'; to again more reference to '*hiding the vegetables*'. The discussed gap in language used around research skills between staff and students as well as employers would suggest that staff need to change their language around research skills to recognise their applied nature in day-to-day life and for student future work-life. It was perceived by staff that students were not recognising that they are often problem-solving and research skills could lead to understand the logic behind proposed solutions and persuade others in their decisions and choices made by students. Overall it was suggested by staff that there should be clear communication with students on how improved research skills can enhance employability skills.

The staff focus group considered ways to encourage, or motivate, students to develop their research skills, including the use of an advanced research tool such as the Bloomberg Professional Service. That is how to improve the quality of research to steer students away from using unreliable sources from the internet, to encourage them to use academic sources. It was suggested that issues of lack of engagement and poor attitude may be improved by making second-year marks contribute to a student's final degree classification. This was felt by the staff focus-group participants to have the potential impact of increasing performance and motivation.

It was noted that one difficulty of the Bloomberg Professional Service in the context of the CME Group Foundation Financial Innovation Laboratory, is the limited number of computer terminals. It was felt that this led naturally to the use of group-work, which it had its advantages and disadvantages. Due to the nature of this Laboratory as an active learning space students have to work at terminals in small groups or pairs. This was felt to encourage conversations in a student group and peer-to-peer learning. In contrast to this

benefit, on occasion group dynamics caused issues and teaching staff have had to get involved. Additionally, staff observed problems noted in the pilot student focus group that there were students who felt this advanced research tool '*overwhelme*d', '*difficult to use*' and '*gave up*'. However, on a positive note, teaching staff have noticed the improved quality of conversation and performance from students after the use of the Bloomberg Professional as a research tool, for example, '*sensible questions*', '*collaborative conversations*' and '*standard of work is better'*.

Staff focus group participants then discussed ways of recognising these benefits and motivating students to use the Bloomberg Professional Service and advanced research tools. Again, this came back to language and communication used between staff and students. One suggestion was that teaching staff needed to get across to students that through the use of quality sources, for example academic journals and advanced research tools like the Bloomberg Professional Service, can increase research skills and good habits to potentially contribute to better marks in assessments.

The staff focus group participants discussed how to create and maintain a higher level of research skills amongst students. The group discussed issues around the transformation between first- and final-year and when to introduce advanced research tools such as the Bloomberg Professional Service; noting that staff knowledge / training may need to be improved. With this it was considered that there be an introduction of these tools to first-year students to encourage usage throughout their entire degree programme and beyond.

The use of alumni was suggested to help illustrate to a student, connections between graduate attributes, learning outcomes and their achievement. These alumni along with returning placement students and final-year students could act as role models to encourage first- and second-year students on using advanced research tools such as the Bloomberg Professional Service. To also establish these connections the content curriculum and teaching models was felt should be inclusive of language that is relevant to students. Some participants suggested the idea to place more focus on communicating the learning and teaching assessments to students. That way students are given enough information and preparation of what is expected of them, with reference to research, to deliver throughout a module. It was felt that early induction was needed to help inform students of what is expected in their University studies and highlight the importance of '*self-awareness*' in their studies. The staff focus group participants recommended the continued use of external employers giving talks / lectures at all levels of a programme of study. This was perceived would raise the relevancy of modules to students in relation to their future careers. Also raising the '*credibility*' of their studies as students were perceived to be more engaged in their research if they can see how it is relevant to '*real*' companies. To address feelings of student disconnection, it was suggested that teaching staff could relate research to students' daily lives as students often did not recognise that they were 'researching' every day. With the use of different language / terms, the focus group participants asserted that this would help students to identify their problem-solving skills.

In agreement with the pilot focus group, staff felt that time should be given to students to allow them to get more familiar with the technical side of advanced research tools such as the Bloomberg Professional Service. This was suggested would allow maximum benefits to be yielded from use of the system and demonstrate that '*you cannot break Bloomberg*' and allow students to make '*mistakes*' as that could encourage students to learn as they progress. In developing student research skills, different techniques were suggested could be adopted in relation to the advanced research tools, for example, providing specific instructions / guidance on how to tackle a big database by dividing it into smaller subsets. Again, it was noted as with the pilot focus group, the importance of early technical support in ensuring the ongoing motivation of students in usage of an advanced research tool.

Following from the staff focus group there was a final evaluation of the project with three focus groups made up of a sample of the student participants in the project:

Again, the focus groups began with outlining their understanding of the term 'research' to help assess the impact of the project's approach. Common answers related to 'research' for assignments and module assessments and addressed areas such as enriching knowledge, background research and looking for answers. It was only upon providing students examples from real-life experiences did they recognise that daily tasks are also research skills related and transferable. The approach taken in this project is to help students recognise that applied research skills, are transferable across studies, personal, social and work-lives.

There was indicated in these focus groups distinct differences with the level of use in online databases / journals amongst different subject areas. Given the nature of their subject areas and assignments, IM students were less familiar with the online databases than HRM and Marketing students. The IM students tended to shy away from using journal articles and online databases. For these students, and type of subject areas this once again suggests the necessity of developing applied skills that are transferable across studies, personal, social and work-lives and with the use of advanced research tools that can be seen to be less academic and potentially be seen to have more application in their working life, for example, the Bloomberg Professional Service.

All students involved in the focus groups indicated the importance of the role of the Librarian and if needed guidance felt comfortable with approaching the Librarian. There was, by the student focus group participants, importance placed on the training, and its reinforcement, of use of journals and online databases. Emphasising this point there were student focus group participants that attended multiple Library induction sessions which they expressed had helped them significantly. To 'refresh' students and update their skills with using online databases, many of the student focus group participants recommended to have further sessions at the start of each semester throughout their programme of study. Additionally, some felt that since referencing is a very important element more time should be dedicated on getting the foundation right in the early stages of a programme of study.

There was a feeling that perhaps that there should be further deliberations on the use of journals, online databases, etc. in their incorporation into modules. It was suggested that this should start with a reassessment of module handbooks and how to communicate the message of these resources' importance to students, for example, reading lists and learning outcomes should be reviewed. There were positive comments made with regards to using online databases and journal articles but felt that given that most students now use Google Scholar that it should also be incorporated into modules. In this it was also felt that emphasis be placed on what was appropriate to the subject, rather than the generic. To strengthen this point, focus group students would like less time to be given to what they viewed as generic study skill modules and more time to a module with the study skills being emphasised and taught within a subject-specific context that highlights its relevance to the workplace. To improve student engagement with research skills it was recommended that small research tasks be incorporated into lectures. Other recommendations to encourage the usage of online databases, general and subject-specific, were that it may be useful to have a 'mock assignment' dedicated to online databases within their subject areas.

Students expressed that there was a big difference between school and University with a sense of being '*lost*' because of the different format, for example, they received a lot of direction in school, whereas when starting University there was a realisation that more independent research was needed for University. Students expressed that there had been a '*big jump*' in expectations of the amount of research, as reflected in the number and variety of resources used, required for module assessments between the levels of their programme

of study. In this it was felt there was a lack of independent research opportunities in the early years of their programme of study. Thus, an issue such as the development of applied research skills needs to be reflected upon throughout the whole programme of study. To further emphasise this point students noted that a lack of knowledge at the start of their programme of study resulted in bad habits being formed, for example, relying solely on textbooks or Googling because it is '*easier*' and '*saves time*'; and perhaps could be rectified by well-developed training program in the various resources available to them. These bad habits were further strengthened as they felt a lack of consistency between teaching staff. Students viewed modules not in isolation, but as a programme of study, where bad habits can be encouraged through lack of consistency across modules and discouraged the view that research skills are applied and transferable.

There was a sense of a communication issue of staff expectations versus student expectations; as seen above this was also a concern for staff. It was felt by students that there had to be a balance between help from teaching staff and independent learning; that as they progressed through their programme of study that staff should stay more in the background, let students make mistakes and choose whether or not to ask for help.

Students noted that thought needed to be given to when research tools like the Bloomberg Professional Service are introduced to a programme of study, i.e. the earlier the better to give themselves enough time to familiarise with the tool to avoid having to learn how to use it when completing final-year assignments simultaneously. It was suggested that '*first-year second semester*' would be the ideal time to introduce students to the Bloomberg Professional Service and advanced research tools. They explained that any earlier, students '*will be scared*' and '*would rather run than facing it*'.

As with staff, the students of the three focus groups placed importance on the role of the placement year and that of part-time jobs to the development of students. Of those students in the focus groups that had completed a placement year as part of their programme of study, there were many positive comments regarding completing a placement year: '*Disciplined*', '*more matured*', '*improved work ethic*', '*more confident*' and '*having a structure and a routine*'. As mentioned in the staff focus group these returning placement students confirmed that they do have a focused mind-set to achieve first-class honours. One negative comment from these students was that they had trouble remembering theories from first- and second-year upon returning from placement. Overwhelmingly the comments were positive on completing a placement year and how it this was helping them in the completion of their final-year modules. Students in the three focus groups also related research skills to their part-time jobs. Through observation in their part time jobs, they could see how they could put theories they have learnt in University into practice. Thus, helping them to '*gain a better understanding*' of the theories by '*seeing how is all being worked out*'. As observed in the staff focus group, students did not realise they are building upon their research skills through other avenues, but after explanation, student participants could see how it relates to their own part-time jobs. As with the staff focus group the issue of problem-solving was discussed by students with them stating that part-time jobs gave them an opportunity to demonstrate a more mature side, as one said '*gives you a bit more initiative*' to solve problem, which is a way to advance research skills.

With the issue of external employers being invited to provide lectures, talks, etc. the opinions of the students mirrored the findings of the staff focus group. Students confirmed that having someone from real companies played and could play an important role in motivating them to '*do more research*'. Reiterating the staff focus group's point that it can matter who delivers the message, student focus group participants noted that someone, such as a graduate employer, who can '*speak their language*' and convince what skills set they need to get into the jobs they are interested in would be useful. HRM students gave some examples of subject specific companies they wished could come into University to deliver

guest lectures, to not only put theory into practice but also to provide networking opportunities for placement and future job prospects. This leads back to the issue of who delivers the message and is seen as more credible in delivering the message of the importance of skills such as research skills. Once again, the importance of communication and language surfaced, as with the staff focus group, and there being a gap between staff and students on how to communicate on the need to develop good research skills. Student focus group participants felt that staff needed to recognise key motivators for them and be able to communicate the benefits of, and how to advance their, employability skills.

To encourage student motivation in developing their transferable research skills, it is essential that it be highlighted the positive messages in their development and in the importance of research tools, such as the Bloomberg Professional Service, in this development. It was suggested that to motivate students in these areas, students needed their thinking converted to reflect on other uses for these skills and tools. Students needed to see that research skills, and its tools, had benefits:

- Students reported that it was necessary for them to see that these resources can provide accurate and credible information and with ongoing use can be time-saving. Additionally, it was suggested that an advanced research tool, such as the Bloomberg Professional Service, could be described to be more specific with their searches in comparison to online databases.
- The research tool, in this case the Bloomberg Professional Service, provided certification, that could be placed on the C.V., that the student could use the resource [in this case the Bloomberg Market Concepts and that this certification can also contribute to the EDGE award].
- Helping students to see that through perseverance if they mastered this research tool they could transfer this technical skill to master others.
- The encouragement of student motivation being that the research and technical skills, as developed through the software / online database such as the Bloomberg Professional Service, are relevant to the workplace. Students suggested that they may be more inclined to use resources like online databases, and the Bloomberg Professional Service, if they can see their relevance outside academia. To help students recognise the transferability of research skills into their work lives as a lifelong skill, one reflection would be that perhaps the approach of this study could be adopted with these resources in the place of the Bloomberg Professional Service, as appropriate to the subject in a practical setting relevant to a student's future workplace.

Another aspect that encouraged student usage of research tools was making them compulsory to use in assessment projects. Some student participants backed this point, by noting that they felt that because the use of the Bloomberg Professional Service was compulsory and necessary to a module's assessment, and observed through learning activities in the active learning space of the Financial Innovation Laboratory, it maintained their interest throughout the course of the semester and allowed them to discover the benefits after '*going in-depth and not just giving up*'. Making student usage of a resource compulsory accounts for the motivation of some students to simply pass and who by avoidance of a resource not achieve a module's learning goals of students being self-directed learners and seeing the relevancy of applied research skills on a lifelong basis. A student's hope to achieve higher marks will always be motivated, and making student usage of the resource compulsory will build on this motivation. To emphasise this point some of the student focus group participants discussed that consideration should be given to making the second year, or even the first two-years, of their programme of study count toward their final degree classification. They felt that this would help to improve motivation and engagement as there was a sense that their efforts in the first- and second-year of their programme of study are '*wasted after putting in a lot of work*'.

One challenge to a student's adoption of software / databases, like the Bloomberg Professional Service, as research tools is that of early technical difficulties in the usage of the software / databases. If there is not a quick resolution to these technical difficulties, and understanding of the tools, a student's confidence in its usage, and a student's motivation, can be reduced. For students to develop their technical and applied research skills, students need to feel encouraged to persevere in their usage of the software / databases and so early resolution is important. This quick resolution could be through choosing whether to request help from teaching staff and / or the use of resources, for example, handouts or a handbook on the Bloomberg Professional Service. In case students cannot ultimately solve issues at a later stage, students did note the importance of having ongoing support such as a technician familiar with the technology and teaching staff familiar with its usage. The student focus group participants went further to suggest, in agreement with the staff focus group, that staff training may need to be increased.

Again, students expressed that they wanted to see study skills, including research skills, integrated and taught across a programme with consistency and in a subject-specific context. This integration included for training for advanced research tools such as the Bloomberg Professional Service. To emphasise this point, even with limited training and experiences with the Bloomberg Professional Service, HRM and Marketing students could see its potential and how they could benefit from using it for the future in their programme of study but needed to know through training what it could offer beyond financial data. They were aware that the Bloomberg Professional Service offered more than financial data but were unsure how to find search for this data, for example, newspapers articles. To quote:
'I think it is a great tool, you can actually see that the basis of it, it is good for referencing and for sources. But I will need to know how to use it to start and continue to use it.'

As identified previously the logistics of an active learning space, in this case lack of terminals, can be issue. Students did agree with the previous assertion that the resolution of a drawback can be turned into a benefit, in this case in encouraging collaboration and peer-to-peer learning as well as encouraging independent learning in the Financial Innovation Laboratory active learning space. Even so, the logistics of an active-learning space can become an ongoing challenge to encouraging independent learning, and research skills. Students were feeling there should be more allocated time for each class. The opening hours of active-learning spaces, timetabling difficulties and generally not being able to access spaces outside of a student's class time can discourage students in their use of the space and in developing their skills. To resolve these issues students suggested the use of cameras, trusting students who genuinely want to use the resource outside of 'opening hours' and having access to an online timetable to book a slot for their own usage. These issues around logistics are also reflected in the following External Examiner's comment:

'Excellent initiative to engage the students further through the activities with an Innovation Lab although I understand that the fact that it was based at another campus caused attendance issues.'

To summarise these reflections:
- Research skills need to be viewed by both staff and students as applied and transferable across studies, personal, social and work-lives.
- There needs to be a subject-specific, and practical in-context, approach taken to the development of study skills, or what students and staff see as 'soft skills'. If taken in context, perhaps the view would shift to a more appropriate term such as employability skills.
- That a consistent approach to the development of any skill needs to be taken across a programme of study.

- Relevancy outside academia, to personal, social and workplace, is important to student motivation.
- It can be necessary to student motivation to have the use of a research tool be compulsory, and observed, in an assessment project.
- The drawbacks in the logistics of an active learning space can become an opportunity for a benefit or if no resolution is found an ongoing challenge to the achievement of learning goals.

EVALUATION

Reflective Commentary (this should draw from your experience and identify what worked well and what were the key challenges)

In terms of the project several things worked well:
- Through the questionnaire and student focus groups it gave staff and students the opportunity to reflect on the student perspective on motivation, research skills and their transferability, the use of advanced research tools and the future.
- It gave staff the opportunity to reflect and be vocal on their experiences with developing student research skills.
- There was a chance to develop an PBL active-learning approach in modules and incorporate applied research skills that could be seen to be transferable to working life.
- It provided the chance to review the language used in relation to research skills and the gaps in communication between staff and students.
- Peer-to-peer learning.
- Use of an alternative active learning space.
- Improved student technical skills.

The key challenges in the project were:
- The logistics of the active learning space, the CME Group Foundation Financial Innovation Laboratory. That is opening hours, timetabling and number of terminals. While the number of terminals became a benefit in terms of peer-to-peer learning the opening hours and timetabling issues could not be resolved.
- The student prior experience and understanding of both research and research tools was a challenge. The focus of the project was to develop applied research skills but this was somewhat hampered by a lack of consistency across programmes of study.
- The need for technical support and training for students in the usage of advanced research tools. There needs to be more technical support and resources provided. Note: an additional resource has been developed to support usage of the Bloomberg Professional Service: 'Basic Essentials in using the Bloomberg Professional Software' information guide.

Student Engagement (to be completed by the student partner): Impact on learning experience and sense of belonging;
This section is completed via the three end-of-project evaluative student focus groups.

In relation to understanding of research skills:
'Yes, I agree, like you will go through a process of looking at the prices and might even go into another place to look at the prices there. I would say that that is research to try to get the best price.

I think some people do it and actually don't even realise that they are doing it.'

Considering the level of research skills and experience of using online databases/journals:
'I didn't need to use one until final year.'

'I'm only using it because apparently you get extra marks for using them.'

'I don't think journal articles help you understand better. But in terms of understanding, I would rather use a textbook. '

'To look at other peoples' research and to see what they've done and to back up our own research.'

'*I think this year the assessments are more structured around research.*'

'*But it's something that once you've learnt it, it's not easy to forget.'*

Impact of demonstrating and training in the use of advanced research tools and developing research skills through this project and its approach:
'*She showed us on how to do it and how to manage our project at the same time instead of just teaching us and then just leave us. She's always there when we have a question at the same time.*

But in a way, she does stay in the background, so in a sense you could work away at it and make your mistakes and then choose to either or not to ask for her help.'

'I thought it was quite useful because it cuts out the jargon for looking up stuff. I suppose it is very accurate if you want to look up stuff in Bloomberg, you pretty much got information specifically rather than like looking through journal articles. So, from that perspective we did find it useful and it was time saving really.'

'*I could see why because it is such an advanced tool and they probably use it in industry to find information as well as in academia.*'

'Remember when we went on Bloomberg and searched for the news, it was talking about trends and stuff, with news reports from years and years ago. Imagine trying to do that in Google.'

'Imagine being able to go into a job interview in the future and being able to say 'I'm really interested in Bloomberg and I have a certificate on it', it will definitely set you apart from the rest of the candidates.'

'It's beneficial.

It's good for your C.V. as well.

Employers do pick up if you use it and they are quite impressed that you've used it.

It does save time as well when you are using it.'

'Really because we all want to use Bloomberg… I want to know how to use it but I just get so disheartened every time I go in.

Like when you know how to use something it becomes easy. But the problem is when you don't know how.'

Some thoughts on the relevancy of language and who delivers the message, for example external employers:
'I wish that a HR manager from a company could come in each week to talk to us. I wish like the HR manager from CITI comes in, like even once or twice a semester. I think this HR module is lacking something like that. It is so theory based. That is not what HR is, HR should be put into practice, we want to practice.'

'I think it will definitely motivate us more to do research, like for example we will try to find what they are talking about and we will be able to relate to theory on what they are actually talking about in real life and get a better understanding of what they are talking about.'

'So, it would be great to have someone coming now like I say from PWC, CITI, Deloitte whatever because then we would be motivated to research into those companies and be a bit more proactive about it about placements. Whereas now we are so bogged down with theory, we are not really doing much about HR in real life and placement seems so far off but it actually isn't. I think guest lecturers coming in will motivate us more in looking for placements and make us research a bit more.

Also after the talks, people will realise what they have to do now.'

'I feel like the working world would be very different to Uni. Uni is like a bubble really. Even the fact that we are learning stuff and regurgitating them to a certain extent in exams. That nature of things would be very different to a work environment. It is not about what you can remember, it is all practical, what you can practice. It is all reactions and skills as suppose to a memory test.

I think motivation as well. I think with someone coming in and saying that they will be willing to hire, it would give us a lot more motivation to work harder.

Also, someone coming in from a different angle. A lot more relatable and a lot more relevant to you than the lecturer perhaps.'

'I would like it to be more practical, I quite like it when we are given a task in the lecture because I think honestly for a two-hours lecture I would listen to it for the first 15 minutes and then blank out.

Like more research task that is relevant to our course.'

Some thoughts on when to introduce advanced research tools and making usage compulsory:
'It would be easier for the ones coming through but we never looked at it before and with a project to complete it was quite difficult to get the information.'

'But I think some people enjoyed using it. So that's probably a motivation to use it.'

'I think it would be very helpful by the time they come to final year. They would already have an idea on how to use it while we are trying to learn how to use it and do it (project) at the same time.'

'I would make it first year in second semester.'

'If it's not compulsory then students wouldn't go in depth into it. But when you do it get and use it as a whole, it is very good. It is very intelligent and you can stream data instantly, like live rates and things so it's fantastic. But if you don't know how to use it then you wouldn't be interested.'

Learning Environment and Engagement: your views on the appropriateness and effectiveness of physical spaces for engagement and virtual spaces to enhance learning.
The CME Group Foundation Financial Innovation Laboratory, through the Bloomberg Professional Service, provides an important learning experience as a resource used normally in a professional setting. Another reason for using the Bloomberg Professional Service is that it develops technical knowledge required in a professional setting. When students acquire skills in using the database – a plus on any C.V. – they also see the integration of aspects between modules and aspects of a programme of study, e.g. economics data and news, corporate finance, accounting, financial market data, political information, access to what analysts are saying etc. Students have access to the same information as leading decision-makers in finance, accounting, business and government through the Bloomberg Professional Service software, bringing the real-world into the classroom. Students can deepen their research, and strengthen their knowledge of the analysis of financial markets, assessment of economic scenarios and interpretation of key news developments that impact the global economy. The skills students can acquire from this experience provide them with the confidence and advantage they need to compete in a global job market. All students can take advantage of free training, giving access to live financial and business data used by leading accountants, managers and marketers worldwide. Bloomberg for Education, only available for students in the CME Group Foundation Financial Innovation Laboratory, provides additional resources to prepare students for the global job market through its Bloomberg Market Concepts e-learning program. This program gives students a recruiting edge through a certificate of completion and the teaching of practical know-how to help students prepare for interviews. In limitations, the CME Group Foundation Financial Innovation Laboratory provides seating for thirty students at a time, two students per computer terminal. Although, through students in pairing to use a terminal, this became an opportunity for peer-to-peer learning to encourage reflection, and development, of students' technical and research skills.

Impact (please provide evidence of the impact on learning and/or teaching)
As evidenced above students involved in the project have now an appreciation of how research skills are relevant not only in academia but in their personal, social and work-lives. Students in the project also can see that usage of advanced research tools, such as the Bloomberg Professional Service, can benefit not only their academic studies but their working-lives. Students have developed a technical skill but it was demonstrated that to encourage perseverance in students to persist in developing their research skills and in their usage of advanced research tools, there needed to be technical support and staff training and resources.

Also, as evidenced above staff where able to structure into modules a PBL active-learning approach and an appreciation of how they could develop modules and programmes of study in the future to be consistent in approach, practical and applied in relation to research skills. There was impact on the teaching approach in terms of the incorporation of 'study skills' and advanced research tools into modules. Staff could see the importance of language to the development of skills and that their language needed to change in order to reduce the any potential miscommunication with students on the importance of skills development.

STRATEGIC DEVELOPMENT

Transferability (consider how this activity might be used by colleagues in other schools/faculties and if it could be developed for a further Faculty interdisciplinary learning project)

The key is structuring module content so that part of the time is spent on some project or problems that offer practical experience, which the Bloomberg Professional Service facilitates through offering students the chance to integrate real-world data into authentic research projects and see the knowledge taught in class in a real setting. Thus, meeting components (i) and (ii) of Fink's (2003) active-learning approach. This is to encourage students to learn more on the research methods, and relevant quantitative measures, as they solve problems in an authentic work-related project. This requires identifying the problem, the content, the resources / materials and the learning objectives up-front. This PBL active-learning approach encourages both the individual learner to reflect on their practice and encourages a collaborative group approach that reflects on the application of research skills to simulated real-life problem scenarios.

The Bloomberg Professional Service is designed for use in industry, and as an offshoot is applied in the academic setting. The Bloomberg Professional service, through the CME Group Foundation Financial Innovation Laboratory, helps enhance research practices, and can be used by students from a wide range of disciplines, such as accounting, finance, economics, management and marketing and beyond into subjects in the built environment and in social sciences. Through practice of Fink's (2003) holistic view of active learning this project's PBL active-learning approach was evaluated in the Investment Management subject-discipline modules already using the Bloomberg Professional Service to provide learning experiences and to then incorporate and evaluate this practice into modules of other Business Subject disciplines. The approach, and use of tools in supporting the provision of opportunities, for the development of applied research skills is transferable to other subject disciplines. If a research tool such as the Bloomberg Professional Service is not appropriate other similar research tools that are discipline-specific could be incorporated into the approach in place of this software.

Dissemination (internal and external) (School and Faculty briefings, workshops, resources developed)

The output of the project has been presented upon at the Ulster University Business School Learning and Teaching event on 21 June 2017. The theme of this event was 'Active Learning and Digital Learning in UUBS'. It is planned to present at other internal events, such as a part of the 2017/18 CHERP Lunchtime Event series.

Externally, it is planned in the academic year 2017/18, to present at the Chartered Association of Business Schools conference; Council for Hospitality Management Education Conference; and a Bloomberg Education Symposium.

A case study guide for staff to the implementation of a Problem-Based Learning active-learning approach, and the Bloomberg Professional Service, in modules has been produced. To support this a 'Basic Essentials in using the Bloomberg Professional Software' information guide has been developed. It is planned that the case study guide will form part of the dissemination activities.

SUPPORTING INFORMATION

References (using Harvard style, list literature and other resources that influenced your work)

Barrows, H.S. (1996) Problem-Based Learning in Medicine and Beyond: A Brief Overview. *New Directions for Teaching and Learning*, 68, 3 – 12.

Bridgstock, R. (2009) The Graduate Attributes We've Overlooked: Enhancing Graduate Employability Through Career Management Skills. *Higher Education Research & Development*, 28 (1), 31 – 44.

Fink, L.D. (2003) *A Self-Directed Guide to Designing Courses for Significant Learning.* San Francisco: Jossey Bass. Available from: http://www.bu.edu/sph/files/2011/06/selfdirected1.pdf [Accessed 20 April 2017].

Ulster University (2013) *Learning and Teaching Strategy (2013/14 – 2017/18).* Ulster University. Available from: https://www.ulster.ac.uk/__data/assets/pdf_file/0006/132396/Learning_TeachingStrategy GraphicVersion.pdf [Accessed 20 April 2017].

Ulster University (2015) *Student Experience Principles.* Ulster University. Available from: www.ulster.ac.uk/academicoffice/download/Policies/StudentExperiencePrinciples.docx [Accessed 20 April 2017].

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Attachments List and attach relevant documents/images in support of project activities
In support of this project a case study and a 'Basic Essentials in using the Bloomberg Professional Software' information guide has been developed. These are available on request.