Developing Excellence in Independent Learning

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Introduction

Research sponsored by the Higher Education Academy (Thomas, Jones, Ottoway, 2015) has concluded that:

> there is not a single, preferred definition of directed independent learning, either in the literature or in the sector, irrespective of institutional type. Discussions with staff and students suggest that although there is broad understanding of the term, there is a lack of clarity, which can cause uncertainty and impact negatively on students' ability to be independent learners. At the institutional level there is not usually great clarity about these issues either, making it more difficult for staff to translate an institutional aspiration into meaningful practices with their students. This confusion is related, at least in part, to different views about the autonomy of students, the role of staff, the purpose and benefits of directed independent learning and the approach to be used. It is therefore suggested that institutions, departments and programme teams should engage in discussion about what they mean by 'directed independent learning' (21).

Our project, "Developing Excellence in Independent Learning," has endeavored to initiate a discussion about how teachers and students at Loughborough University understand and approach guided independent learning (GIL) and the factors that contribute to or mitigate against students developing as independent learners. Through interviews, focus group discussions, and a workshop, we sought to clarify staff and student views about student autonomy, the role of tutors in supporting autonomous learning, and current best practice in GIL. Our qualitative research findings offer insight into the ways in which students enrolled on Arts & Humanities (A&H) and STEM programmes understand the concept of independent learning (IL), their motivations to engage in it and how they endeavor to learn independently, as well as how staff lecturing in diverse disciplines endeavor to guide student learning. It is hoped that the results of this study will stimulate a wider discussion among Loughborough colleagues at programme and School level regarding best practice in GIL, as well as provide a data base upon which further quantitative study could be founded.

Background to the Study & Literature Review

Before undertaking the study, we carried out a survey of selected literature relevant to the topic of IL/GIL. We offer a summary here of the research that informed our project, particularly how we framed some of the interview and focus group questions.

As noted in QAA guidance document "Explaining Contact Hours," higher education is distinguished from other levels by the amount of time students are expected to engage in IL: "Scheduled learning and teaching activities typically feature alongside time in which students are expected to study independently, which may itself be 'guided'. Independent study might include preparation for scheduled sessions, follow-up work, wider reading or practice, completion of assessment tasks, revision, and so on. The relative amounts of time that students are expected to spend engaged in scheduled activities and independent study varies between courses" (6). While Loughborough students are expected to take responsibility for their own learning, a range of support may be provided by tutors to guide them: e.g. writing/presentation skills delivered as part of an individual module, or centrally delivered study skills training on how to use the library.

For purposes of this study, IL is taken to include a student working solo, in pairs, or in small peer groups, and it encompasses both scheduled group activity that forms part of contact time on a module under supervision in a studio or lab for instance, or where students opt to study in pairs or small groups in a self-selected space without staff supervision. Our decision to consider the implications of group work is rooted in practice: most Loughborough students engage in this activity, often for assessment, and pedagogical research illustrates its importance in developing IL skills. For example, Marsh, Richards and Smith argue that educators must recognise that "learning arises from collaborative and co-operative activities either in groups or from the study of the ideas and discoveries of others" (14-15). Their research, undertaken as part of establishing an Education programme with the aim of developing independent learners, identifies what they refer to as the "independence fallacy;" that is, independence and autonomy in learning is more closely related to "collaboration and co-operation" than may be commonly understood. Thus, group work is an essential component to enabling students to become more adept independent learners. Accordingly, student perceptions of group work were queried in the Focus Group session, as were staff attitudes in interviews.

With reference to independent projects such as essays, one of the most common forms of assessment for A&H students, Wendt and Ase note: "Essay-writing is generally viewed as the primary learning activity to foster independence and analytical thinking. However, they conclude that "such independent research projects do not necessarily lead to critical thinking." Andrews accepts that the essay remains a valuable part of undergraduate work, particularly in A&H subjects, but also recommends that tutors employ a variety of written forms of assessment – e.g. reflective critical autobiographical work or reviews – and "recognise more formally the diverse forms of student expression as valid contributions to the demonstration of emerging knowledge" (1). Given that essay writing is the main form of assessment employed currently on the English programme at Loughborough, we were keen to explore the value students placed on this form of assessment relevant to IL.

At Loughborough,, students on A&H programmes are expected to engage in 160 (out of 200 hours) of IL activities per 20 modular credits; while in ME, students are expected to undertake typically 70 hours per 10 modular credits in part A, increasing to around 90 hours in part D. We were interested to assess the extent to which students understood this requirement, what activities they engaged in during this time, and approximately how much time they spent in fact on

independent study. We also aimed to assess how lecturers understood the purpose of these hours, and the extent to which they guided students on how to best use them.

A review of the literature shows that there are multiple definitions of IL (sometimes called autonomous learning or self-directed learning), many of which do not clearly define the term. Nor are extant definitions agreed upon among educators and researchers, as Scott, Furnell, Murphy, and Goulder make clear:

> Loyens, Magda and Rikers describe *self-directed learning* and *self-regulated learning* as processes during which learners function autonomously, taking responsibility for planning, initiating and evaluating their own learning efforts. Betts sees the autonomous student as being an independent and life-long learner. Learning autonomy is seen by Holec as the ability to learn in a logical and appropriate manner and by Benson as the capacity by which a student takes control of their own learning.[1]

The term GIL appears with less frequency in the literature, though often the concept of guidance is implicit in discussions of IL. At the beginning of the study, we adopted the following concept of GIL as our working definition:

> …learning in which students are guided by curriculum content, pedagogy and assessment, and supported by staff and the learning environment, and in which students play an active role in their learning experience – either on their own, or in collaboration with peers. They are supported in their independent learning by learning resources, including libraries, online materials and learning environments, and physical learning spaces; and by the development of their academic capacity either through the core curriculum or through additional support services (Thomas, Jones, Ottaway 7-8).

The above definition highlights the need to consider how a range of environmental factors impact on students' ability to develop their IL skills, and this issue was raised in interviews and the focus group.

Meyer, Haywood, Sachdev, and Faraday similarly promote the importance of the correct "enabling environment" to support IL. They distinguish between internal and exterior factors relevant to IL: "[t]he internal elements are the additional learning skills (including time management, team working, critical review, etc.) that students have to acquire." In addition to physical and material resources, most important among "[t]he external elements are the development of a strong relationship between teachers and students…" (5). With this in mind, staff were asked to reflect on how they believed module content, classroom teaching practice

[1] For further details, see Loyens, S.M.M., J. Magda, and R.M.J.P. Rikers. "Self-directed learning in problem based learning and its relationships with self-regulated learning." *Educational Psychology Review* 20 (2008): 411–27; Betts, G. "Fostering autonomous learners through levels of differentiation." *Roeper Review*: *A Journal of Gifted Education* 26, no. 4 (2004): 190–91; Holec, H. 1981. *Autonomy in foreign language learning*. Oxford: Oxford University Press, 1981; Benson P. *Teaching and researching autonomy in language learning*. Harlow: Pearson Educatio, 2001.

during and engagement with students outside class, learning technologies, and assessment fed into GIL. To gauge the efficacy of the learning environment from the students' perspective, Focus Group participants were asked to comment on their use of learning spaces, identify the learning resources that most aided IL and what kind of support they felt they needed from staff to become adept independent learners.

Although there may be disagreements as to precisely what constitutes IL/GIL, there appears to be a broad cultural consensus among educators and policy makers that the ability to learn independently is essential – not only for success in higher education, but also throughout a person's life. Warburton and Volet, for example, find evidence of a "relationship between self-regulated learning strategies and academic achievement," and cite a body of research that demonstrates "self-regulated learners appear to have greater success than individuals who do not exhibit self-regulated learning behaviours;" Barnard-Brak et al. (2010); Vermetten et al. (2001), Boekaerts and Corno, (2005); Schunk and Zimmerman, (2008).[2]

Within the context of British higher education, as Marsh, Richards and Smith point out, since the 1997 Green Paper "Higher Education for the Twenty-first Century," national educational policy has "emphasised the importance of developing a culture of 'Lifelong Learning' in order to promote a 'Learning Society', ready, equipped and responsive to change" (382-83). With the introduction of TEF, and its emphasis on "stretching the best and placing pressure on those with variable quality to improve" (Anon. Department for Education), it is essential that Loughborough continue to enhance its learning and teaching practice in relation to GIL, and to disseminate examples of best practice among staff in order to maintain Loughborough's Gold standing.

Whereas what constitutes IL is subject to pedagogical debate, there is more coherence among critical definitions of the independent learner [what Meyer (et. al.) refers to as internal factors]. Most received definitions are derived from Bloom's taxonomy of learning objectives (1956), particularly with reference to cognitive skills 4, 5, and 6:

1. knowledge: the recall of specific items
2. comprehension: can recall, but can do a little more (e.g. paraphrase, define, discuss to some extent)
3. application: all of the above, but can take information of an abstract nature and use it in concrete situations
4. *analysis: can break down a communication into its constituent parts, revealing the relationships among them*
5. *synthesis: can pull together many disorganised elements or parts so as to form a whole*
6. *evaluation: makes judgements about the value of materials or methods [italics ours]*.

[2] For further details see Barnard-Brak L, Paton VO and Lan WY. "Profiles in self-regulated learning in the online learning environment." *International Review of Research in Open and Distance Learning* 11:1 (2010):61–80; Vermetten YL, Lodewijks HG and Vermunt JD. "The role of personality traits and goal orientations in strategy use." *Contemporary Educational Psychology* 26: 2 (2001):149–70; Boekaerts M, Pintrich PR and Zeidner M (Eds.) *Handbook of self-regulation*. San Diego: Academic Press, 2000; Schunk DH and Zimmerman BJ (Eds.) *Motivation and Self-Regulated Learning: Theory, Research and Applications*. Mahwah, NJ: Erlbaum, 2008.

More recently, Dynan, Kate and Ree (2008)[3] describe self-directed learners as "students who ask appropriate questions to guide their enquiry, interrogate the assumptions behind the ideas presented to them, identify appropriate resources and tools and use or modify these strategically to achieve their learning goals; while Jansen and Suhre (2010)[4] add a "growing ability to distinguish between major concepts and supporting ideas, use strategies for elaboration and organisation of major concepts and evaluate the time needed to absorb large amounts of subject matter" (Qtd. in Warburton and Volet, 10).

We sought to compare the above understandings with how both GIL and independent learners are understood among Loughborough teachers and students. Staff were asked how they defined IL and GIL, as well as how they measured and supported their students' progress toward becoming more competent independent learners. We were interested to assess through the Focus Group what activities students perceived as IL versus GIL and how they defined themselves in relation to this category of learner.

Our survey of the literature revealed a small but developing body of research regarding why some students are more successful at learning independently than others. One study by Macaskill and Denovan concludes that "autonomy in learning is not so much about methods of learning, but about developing capabilities in students to enable them to become autonomous learners": in other words, personal qualities such as self-confidence (125). This (and Fazey and Fazey's) study prompted us to include a question in staff interviews about the relationship between personal characteristics and independent learning competencies: no comparative question was included in the Focus Group discussion, as it was felt that some students might not be comfortable reflecting on personal qualities in this context.

Another strand of our research involved considering the role of technology in fostering IL. [5] Thomas, Jones and Ottaway suggest that use of technology and online learning can "offer more flexibility, and thus be more inclusive, than some other forms of learning and teaching," for example by providing "material in different formats, to meet different learning preferences and to offer flexibility about when and where students engage" (57). Dewhurst, Macleod, Norris and Williams (2000) note that computer-based learning (CBL) has been shown as an effective aid to student-learning in controlled situations, whereas it is less clear the extent to which CBL impacts positively on IL. However, their study of computer-based tutorials as a substitute for live lectures found that students favorably reported on CBL because it encouraged self-motivation, good time-management, allowed greater flexibility in managing their own learning (e.g. choosing where and when to study), allowed them to privilege their own learning style, and afforded enhanced concentration and note-taking (239-40).

[3] Dynan L, Cate T and Rhee K. "The impact of learning structure on students' readiness for self-directed earning." *The Journal of Education for Business* 84:2 (2008): 96–100.
[4] For further details see Jansen EPWA and Suhre CJM. "The effect of secondary school study skills preparation on first-year university achievement." *Educational Studies* 36: 5 (2010): 569–80.
[5] See also Dewhurst, D. G., & Williams, A. D. "An investigation of the potential for a computer-based program covering the cardiovascular system to replace traditional lectures." *Computers and Education* 31 (1998): 301-317.

Research also shows a correlation between consistent and sustained use of E-learning platforms (E.g. LEARN) in support of face-to-face contact and higher achievement. For example, Knight concludes "that students who adopted a deep learning approach, in which online resources were accessed consistently throughout the module, performed markedly higher than surface learners who focused their online activity at the beginning or end of the module's duration" (67). However, achievement of deep learning depends upon how tutors employ the functions of E-learning platforms. Knight warns against using resources in a way that allows students to employ "the 'grab-and-go' strategy associated with surface learning: learning technologies must encourage the more explorative and interactive strategies associated with deep and active learning as this is key to increasing student understanding and, thus, overall module performance (Broad et al., 2004; Ellis et al., 2005)" (74).[6]

Using technology in place of traditional lectures/seminars is not current practice at Loughborough, but CBL in the form of LEARN and Lecture Capture is a significant part of the learning and teaching experience for students on A&H and STEM programmes. Consequently, when interviewing staff and in the student Focus Group, we sought to understand current practice in relation to CBL: if, and how, staff employ technology in learning and teaching, what staff consider to be its advantages/disadvantages, and the extent to which students value E-learning and when and how they make use of it.

Finally, we read about the role of assessment in the process of GIL. Thomas, Jones and Ottoway assert that "assessment is integral to effective DIL: "Assessment can generate motivation for students to engage, provide a useful mechanism for interaction between students and academic staff, and provide students with feedback to improve their study processes and outcomes in the future." Following this, staff perception of the role of assessment in GIL was surveyed in interviews, alongside that of Focus Group participants.

Aims of the Study and Research Questions

The aims of this study are threefold:

1. To explore staff and student attitudes and approaches to GIL at Loughborough, focusing on students between first and third years registered on Undergraduate programmes in distinctly different subject areas [Materials Engineering (ME) and English].
2. To discover what strategies teaching staff employ to enable IL and how students respond to/engage in GIL.
3. To use data collected in tandem with available research to recommend effective pedagogical approaches to promote IL in line with TEF requirements and produce a guide to best enabling students to develop into competent independent and life-long learners.

[6] See also Bentaa et. al.

The research has attempted to address the following key research questions:

1. What are the similarities and differences between staff and student perceptions of guiding IL?
2. What teaching methods and resources are most effective in promoting IL?
3. What kind of activities do students regularly engage in that might be considered forms of IL?
4. What factors impact on the extent to which students can develop as independent learners?

Methods

Participants

A report by the HEA on student perspectives and experiences of IL found "comparatively few differences between students studying in different discipline areas" (Thomas, Hockings, Ottaway, Jones 5). We aimed to test this hypothesis within the context of learning and teaching at Loughborough; accordingly, in terms of discipline type dimension, we explored GIL from the perspective of one 'Soft Pure/Applied' discipline –English – and a 'Hard Applied' discipline, ME. According to received definitions, 'Soft' subjects are characterized by a qualitative bias and a more specific and subjective focus, while 'Hard' subjects are concerned with quantitative measures, and when applied, have a strong productive element. [7]

Eight A&H staff were interviewed, ranging from newly appointed lecturers to experienced professors: one Professor, one Reader, three Senior Lecturers, three Lecturers. Seven ME staff were interviewed, also representative of various ranks: one Professor, two Readers, two Senior Lecturers, two Lecturers.

The student focus group comprised 7 undergraduates, registered on English/Drama/Publishing and ME programmes, drawn from Part A, Part B, and Part C cohorts. Four students were studying ME, and three were studying A&H subjects.[8] It should be noted that we originally planned to have two focus groups, but because of the extended industrial strike action, we only had time to run one group. Participants were given a £5 Amazon voucher in recognition of their contributions.

Workshop participants were self-selected in that they chose to participate in the session we ran at the 2018 Learning and Teaching Conference: Educating for Success (CAP, Loughborough University, 27 June).

[7] This taxonomy is derived from Becher and Trowler.

[8] The Participant Information Sheet may be found in Appendix 3; the Consent Form in Appendix 4.

Evaluation Tools

One-to-one interviews (c. 45 minutes) with staff were used to assess how lecturers understand the concept and practice of IL. Staff in A&H were interviewed by Dr Mary Brewer, who lectures in English and Drama, while staff in ME were interviewed by Dr Simon Hogg, who is based in this area. A full list of interview questions is contained in Appendix 1.

A two-hour focus group designed and led by undergraduate student research assistants was conducted. Student assistants designed the questions with input from the lead researchers, and Dr. Deena Ingham (CAP), who also provided research and ethics training. A full list of questions employed in the session is available in Appendix 2. Questions and Focus Group Structure were devised by Kay Mathies (ME), Mary Nicholls (SAED), James Phenix (ME) and Symrun Samria (SAED). Focus Group leaders were: Kay Mathies (ME), Mary Nicholls (SAED), and Symrun Samria (SAED).

A 50-minute interactive conference session. After describing the parameters of the project and summarizing activities undertaken/available results thus far, participants (24 staff, two students) were asked to discuss and feedback on two questions. A breakdown of participants roles in the university may be found in Appendix 5.

The interviews, focus group discussion, and workshop were recorded with permission. Also, detailed notes were taken by staff conducting the interviews and during the workshop, while a research assistant (Symrun Samria) took notes during the Focus Group. The Focus Group discussion was also professionally transcribed. The workshop generated artefacts – written responses to questions, captured whiteboard notes summarizing group discussion. All the material has been used to inform our analysis.

Results: Staff Interviews & Focus Group

Guided Independent Learning: Definitions

Arts & Humanities Staff

Except for one member of staff, who thought that GIL was a "contradiction in terms", interviewees viewed GIL as a process that took place mainly at modular level. GIL involves teachers giving students a set of parameters within which to work, what one staff member called "student centered directions." These directions aim to guide students in how to solve open ended questions: an example would be directing students toward appropriate secondary reading so that they can write an essay about a set question.

Materials Engineering Staff

Amongst ME staff, generically IL was considered to be anything done outside the lecture theatre (e.g. watching videos, reviewing lecture notes), while GIL related to providing links to learning material (e.g. key research articles), usually via LEARN.

Students

At the beginning of the discussion, students were divided in their opinions depending on what subject they were studying. A&H participants understood IL to be studying self-selected material – e.g. finding relevant secondary sources for use in an essay or other assignment. This view was rooted partly in the (mistaken) belief that secondary material is not "required reading," and therefore, anything not strictly required for a formal contact session is deemed to be "independent." An ME student queried this definition, viewing all learning outside of formal contact time in some way guided by the topic, and therefore, argued it was GIL rather than IL. By the end of the discussion, students had reached a consensus: whether the material studied was found on one's own or provided by lecturers, required for study or deemed optional, private study of such matter constituted GIL.

Independent Learning Activities

Arts & Humanities

There was general concurrence among staff concerning what activities constituted IL. They identified the following: reading and re-reading primary sources that form the basis of weekly lectures and seminars, weekly reading of secondary research materials focused on the primary texts and related contextual topics, completing individual or small group tasks for presentation in seminars, working on assessments.

Peer feedback in seminar discussion or in small group work outside of formal contact time was considered by a majority of staff to be the most valuable means of fostering analytical thinking and IL among UGs. However, for this to be of most value, it was felt that the learning activity needed to be open ended - e.g. a set of questions relevant to a novel or poem, close reading of a literary passage. The belief is that having to explain their answers/opinions to peers helps develop critical thinking.

Staff expected IL learning activities to be spread across the 160 hours of IL time allocated per each 20-credit module (there are no 10 credit modules in English). Module content was viewed as sufficient to engage students for this amount of time, but most staff noted that the amount of time spent on different tasks will necessarily vary according to a student's learning styles and abilities – e.g. students might spend more/less time reading primary resources due to different reading competencies.

Materials Engineering

ME staff suggested an equally wide range of activities, including: promoting study groups for peer learning, lectures with hands-on activities, activities that promote connections between different learning experiences. It was agreed that it is important to get students to do things to allow development of critical and innovation skills and to propose and discuss ideas. However, in some cases, activities such as watching videos and interactive websites (which may be external to the University) were considered to be valid IL activities.

Students

For A&H students, the study of primary texts was excluded from their understanding of the concept of IL, with the emphasis being on locating and reading secondary research material. However, because secondary reading was viewed as optional, based on greater or lesser personal interest in a topic, it raises the question of whether students recognize developing as independent learners to be a key objective of UG study.

IL is generally understood by ME students to involve the study of past exam papers during revision periods, studying tutorial sheets with sample answers, and finding supporting factual material in databases/online, or videos that explain processes.

Students reported different feelings about group work relevant to their programme of study. For A&H students, where small group work was assessed on a weekly basis for a participation mark, they reported feeling disengaged and spending little time with their "subgroups". Reasons given for this were: "people are unreliable," "different learning styles" make group work difficult and unenjoyable, it was "too hard to meet" because of timetable/commitment clashes, "personality issues" among group members. A&H students reported spending little time learning with others, unless forced to do so as part of a summative group assessment, where students were motivated to collaborate.

In contrast, ME students reported that choosing to study as part of a group was a common and regular practice among peers. They reported engaging in independent group study because "it helps motivate [them] to learn". They reported valuing highly the opportunity that group work provides to test their knowledge – e.g. they believed that having to explain something to a peer clearly helped them make sense of a problem.

A&H students were unanimous in concluding that it was not necessary to spend 160 hours per semester working on module materials to get a good passing grade, reporting an average of 50 hours per module per semester, with most hours outside formal contact time devoted to reading primary texts and writing-up assessments. ME students (whose programme includes 10 credit modules) agreed that it was possible to spend less than the set time for IL on "problem-based modules", but for "project-based modules", they concurred that c. 100 hours of IL time was needed for success.

Measuring Independent Learning

Arts & Humanities

Staff measured whether students were successful independent learners mainly via assessment activities, with all interviewees identifying formal assessments as the best way to measure student development. Assessment was viewed as a "carrot" to encourage students to work (e.g. read primary texts, develop their ideas, research a topic, and present their views in writing). Following assessment, most staff identified the quality of student responses in seminars as an indicator of IL (e.g. whether a student could "take

control of the discussion after 3-4 weeks of term") and the quality of response to seminar tasks (answering set questions, giving short presentations – sometimes assessed/unassessed). Seminars were viewed as the most valuable space in which to identify those students who were/were not developing analytical skills and the ability to learn effectively on their own.

Some staff felt that students did not use the time outside lectures/seminars productively or to beneficial effect in terms of developing as independent learners: e.g. judging from seminar participation students did not read beyond the primary texts (and sometimes not even the set text), assessments and group tasks suggested students did no go beyond material encountered in timetabled sessions, while many students struggled with planning and managing their own learning on the Part C dissertation module.

Materials Engineering

Some staff recognised that IL will address higher-level learning outcomes, but most noted that this was not specifically measured. There was reliance on asking questions (in exams etc.) based on delivered lecture content to assess IL. Some staff felt that some measure of IL was undertaken using more open-ended coursework – e.g. looking to see if students have looked beyond the lecture notes. There are some specific examples – e.g. final year projects, posters etc. but often it was felt that the work produced by students demonstrated a reliance on easily accessible information – e.g. via Wikipedia/YouTube etc.

Students

Like staff, students also conceived of assessment as the most common instrument used to measure their ability to learn independently. Their responses support the idea of the "carrot-effect;" that is, independent study is spurred often by pressures of assessment.

However, A&H and ME students reported disparities in how assessed tasks challenged them/enabled them to become better ILs. ME students reported that in most instances coursework briefs required them to acquire "fact-based knowledge" on their own related to a variety of subjects. They felt it was relatively easy to work independently on their assessments because they study a "technical subject," which is about acquiring "fact-based knowledge" rather than being "about opinion," which is how they viewed A&H subjects. Further, they connected the IL activities they undertook for assessed tasks to postgraduate employment, where they understand that they will be required to develop further "greater specificity" of knowledge.

A&H students offered more mixed views of GIL in relation to assessment, reporting a disparity in the type and quality of guidance offered across their modules; for example, some tutors "give too much guidance", which "stifles creativity" and "imagination", while "vague" assessment criteria make IL harder (e.g. lecturers interpret the same language - "relevant research", "sufficient research" – differently). There was consensus

that if one is “trying to guess what lecturers want,” it is “hard to learn independently” when working on assessments.

Fostering Independent Learning

Arts & Humanities

No staff member reported systematically planning how students should be using the time when planning a module at Part A (or B/C), although some give general guidance at the start of a module. Most staff did not provide “student centered directions” in detail for IL outside of timetabled contact hours, the assumption being that after Part A students have the necessary skills to learn independently outside of formal contact time. Two interviewees reported guiding IL by identifying secondary reading relevant to each weekly topic on the module LEARN page, while four staff members assigned preparatory tasks to be completed by a peer group each week.

Materials Engineering

Like A&H staff, those lecturing in ME did not plan the students’ time allocation within the whole of the module or had even considered planning this. It was generally expected that this was up to the students to manage and better to give the students freedom to choose how they allocate their time, and one considered that the time allocation in the module specification is essentially arbitrary anyway. In some cases (typically project-based modules in later parts) students were expected to meet for 1h per week, but this was not timetabled.

Students

For A&H students, IL activities take place mainly “under pressure of deadlines” and “close to the deadline.” How much IL takes place is related to the amount of module content on which students are assessed (e.g. 2-3 texts out of 10-12 covered on a module). Students report working “strategically” outside of contact time, that is, deciding early on what texts they would use for assessed tasks, and focusing their IL activities on this material. The students found tutorials helpful in guiding IL, because they received recommendations about what kind of secondary material to read, or tutors guided them to specific readings needed for an assessment.

ME students reported the need to undertake IL at different points across a module, not necessarily close to exam time. ME students reported being given mainly holistic forms of assessment, and therefore, they could not undertake selective study, and IL activities were undertaken on a wider range of topics. Sample answers and previous exam papers represent the most significant ways in which they felt their tutors guided their IL.

Obstacles to Independent Learning

Arts & Humanities

Staff identified primarily prior educational experiences – namely GCSE/A-level courses that require students to work only with small chunks of material. Generally, it was felt that students spend 5 years before university being "spoon-fed" and guided too firmly toward giving the "right answers" on exams. Staff consider pre-university education as encouraging students to be assessment-led and discouraging intellectual curiosity, critical thinking, and independence – all of which involves some element of risk-taking. This seems to pose difficulties especially for students who wish to pursue creative subjects at university level (e.g. Creative Writing).

Some staff mentioned a "poor work ethic" among students as a significant obstacle, while others noted a lack of understanding among students about how they should spend their time outside of timetabled sessions. One tutor judged poor attendance to be a significant factor in a student failing to develop the critical thinking skills needed to become an independent learner. One staff member noted that many students struggled to read longer literary works (e.g. reading whole novels, plays) or sustain attention during lengthier learning and teaching activities in timetabled sessions, suggesting a possible relation between a reduced attention span and social media usage.

Materials Engineering

Staff highlighted a wide range of difficulties/obstacles to IL, ranging from a 'spoon-fed' approach in pre-University education, lack of student time management (leaving things to the last minute even with long coursework deadlines) to having too many 10-credit modules with too many small pieces of coursework that lack depth.

One area that was highlighted was the highly diverse nature of the subject; this means that individual modules can be very different and seem to lack any connection, which makes it difficult for student-learning in a focused way. Students may come to university with a lack of understanding about what the subject is - perhaps making it difficult for students to remain interested and motivated.

Some concerns came from worrying about a value for money perception related to too much independent study, along with a wish to avoid the risk of student complaints or poor module feedback associated with assessing/examining IL. Finally, one staff member pointed out that we need staff that are willing to spend time on up-front preparation.

Students

Students did not remark upon previous learning experiences but focused instead on their UG experience thus far when commenting on this topic.

A&H students singled out varieties in teaching style/practice as a potential obstacle to IL – e.g. some lecturers made more comprehensive use of LEARN than others, some

modules offered a week to focus on IL for assessment, whereas others required you to undertake studying new material while preparing assessments, some modules are taught by specialists whereas others are not, so quality of guidance is perceived to differ. When asked what would help them to become better ILs, students suggested more guidance on research, particularly more focused reading lists: "overly long" module reading lists and lists containing mainly monographs/edited collections are less helpful, as are lists which are not divided into topics.

ME students noted also how tutors could help/hinder IL. For example, some tutors do not always put up past exam papers as a learning guide. Some coursework briefs are clear, whereas others provided are too vague. When asked what would help them to become better ILs, ME students reported a sample timeline of where they should be in the development of a project as desirable.

Personal Qualities and Independent Learning

Arts & Humanities

Staff listed: (in no particular order):

Lack of confidence/shyness
Over-confidence in natural ability
Poor work ethic
Fear of failure
Lack of resilience (e.g. to recover from failure, cope with stress)
Inability to take constructive feedback
Inability to respond effectively to feedback
Lack of intellectual curiosity
Apparent disinterest in the subject they chose to study
Poor organization/time management skills
Limited attention spans
Social differences (Gender/class)

<u>Materials Engineering</u>

ME staff identified essentially the same personal qualities as noted above, but they tended to emphasise the need for students to be enthusiastic, passionate and motivated to study the subject. One member of staff, recognising this, felt that tutors need to take more of an enabling role to encourage the students, rather than concentrating simply on delivering content.

<u>Students</u>

As noted above, students were not queried on this topic.

Supporting Independent Learning

Arts & Humanities

Firstly, providing constructive feedback was considered the most important element by most staff to support IL; this included written and verbal feedback – pointing out what students did well and did not do well on a set task. There was disagreement over the type of feedback that was most valuable, with some staff noting the current feedback forms to be unhelpful because the discursive comments often confused students, whereas the tick boxes offered greater clarity, and vice versa. Secondly, staff noted providing opportunities for group work and peer feedback as a key form of support; some staff allowed students to self-select a group, while others placed students into small groups, ensuring they contain a mixed range of abilities. Thirdly, interviewees noted one-to-one tutorials as a valuable opportunity to assist those who struggled with IL to make advances.

Materials Engineering

Many staff admitted that IL was not a consideration when developing modules. One staff member felt that there was a need for clear objectives to push them to further encourage IL. Contact is considered key to providing the guidance to motivate the students towards the subject.

Students

ME and A&H students concurred on most points here. Students reported feeling supported by teachers to develop as ILs when they were encouraged to learn by doing, which was expressed in terms of a desire for more "practical" assessments that combined theory and "hands-on learning." The following comment illustrates this commonly shared view among A&H and ME students: the "best support for learning is to give practical projects", although they did not offer specifics about what kind of projects they had in mind. A comprehensive use of LEARN was also singled out as providing useful support, clear and consistent guidance on assessments, as well as the opportunity to have tutorials in which assessed coursework can be discussed.

Technology and Independent Learning

Arts & Humanities

Many interviewees did not feel that LEARN was a useful aid in developing IL, considering it mainly a "data archive." LEARN was used mainly in limited ways - e.g. to list weekly reading material, upload study questions, and as a noticeboard for group messages. Some staff were unaware of other functions on LEARN – e.g. quizzes – while others felt they understood what LEARN could offer, but either did not know how to use all the functions or felt that workload made it difficult to devote time to such additional activities. One tutor believed students did not feel LEARN was a "safe space" and therefore would not wish to put their ideas out via a blog for instance.

Most staff did not feel that technology had a significant role to play in fostering IL – many because they found clear evidence that students did not regularly consult module LEARN pages (e.g. students sending emails asking for information already on LEARN). Outside of LEARN, some staff felt that technology hindered learning because students tended to do by researching by Googling topics, and because they did not filter the results, they encountered low level sources or inaccurate material. One tutor mentioned students feel "tech fatigue," and therefore, was averse to employing technology in learning and teaching.

Among those who regularly used technology in their teaching, there was enthusiasm for its benefits – e.g. there are numerous phone apps for creative writers (help with plotting etc.). Another tutor was planning to introduce students to software for analysing "big data." One tutor felt that technology allowed for more experimental learning, more practice-based learning, while another noted the importance of being conversant with technology for placement/employment opportunities.

Materials Engineering

Technology enhanced learning, whilst considered useful, was generally not seen as playing a significantly role for IL, because staff felt that student engagement was more important. Some felt that such tools may add different ways to enhance already delivered lecture content (e.g. using LEARN as a repository to add learning materials). The use of links to externally produced videos (YouTube, Kahn academy etc.) was considered to be useful, but would typically be included only to add to what was already delivered in the lectures.

Barriers to using LEARN included the time and difficulties associated with setting up activities in LEARN combined with the perceived lack of benefit. Lecture Capture was mentioned as having potential to help with IL, but that students needed to be educated about how to use this resource in order for it to be useful in supporting IL.

Students

All Focus Group participants considered technology to significantly aid IL, and they reported engaging with a variety of technology to support their study.

A&H students considered the best learning tech to be research library-based tools, namely Catalogue Plus, and databases offering access to full texts. All students reported regularly using Google to find material, with ME students using online sources more frequently. Google, Mendeley, and YouTube were the key research tools employed by them in IL as an aid to clarifying material encountered in lectures, or to gain a deeper understanding of it. They noted that they were "discouraged" from over-relying on web-based materials, and customary guidance for essays was that no more than 10% of material should come from online sources due to questions of "reliability"; consequently, they relied more on articles for assessed coursework.

Lecture Capture was noted as valuable for revision by ME students, but A&H students stated that they did not "revisit" lectures, or even lecture slides/notes unless they were related to the text they were going to use in assessed work. Hence, they made more limited use of this resource than ME students, who need to revise all topics for exams.

Students identified LEARN as supporting IL, but its usefulness is determined by how tutors use the system. For example, LEARN pages that offered a "lot of resources" (for ME students "important papers to read"; for A&H students "extra resources") were valued as assisting IL, whereas those pages with less information much less so. A&H students especially valued LEARN when it offered a way of further engaging with their tutors (e.g. forums).

Assisting Staff in Developing Independent Learners

This question generated the most discussion among interviewees. Staff listed the following as desirable objectives (in no particular order):

Stop "obsessing" about NSS scores, which results in "spoon-feeding" to keep students happy rather than challenging them.

A franker discussion with students about expectations and not being complacent about allowing students to coast.

A better academic guidance programme (Personal Best received poor feedback in this regard) that was relevant to the degree programme of a cohort, and one that focused more on learning how to learn rather than how to get a job. It was argued that Personal Best should be devised and delivered on a subject basis, not centrally, to enable this.

Link learning throughout the degree to employability and a wider range of career paths, including embedding transferrable skills more widely/explicitly in modules – e.g.

students need more practice developing oral presentation skills. Another tutor expressed this as believing there should be less "homogenization" on the programme (e.g. more varied assessment packages across the programme as opposed to mainly traditional essays).

Better monitoring of students who are struggling to make grades or exhibiting poor attendance/participation.

Cease using lecture capture, because it works against IL (One staff member)

Materials Engineering

There were very similar responses from the ME staff. Some felt that there was a lack of pedagogical understanding about IL. Staff time availability and the motivation to develop learning and teaching resources focused on IL was a key concern. It was felt that we would need a step-change in the way that we teach and assess at module-level to have a very significant impact on student IL.

Workshop

Working in small groups, participants were asked to consider the following questions:

1. Discuss the benefits and disadvantages of directing how students might best use their time outside of formal contact (e.g. lectures/seminars).
2. How do you measure how your students are developing as independent learners?

Summary of Responses (full responses may be found in Appendix 7):

1. The advantages of guiding students in what to do outside of formal contact time included (no particular order):
    a. Easing transition from earlier study (e.g. A-level, BTEC)
    b. Students at various levels of development and with different learning styles might be better supported
    c. Aiding preparation for future sessions
    d. Appropriate preparation leads to deeper learning in sessions
    e. Cementing learning
    f. Helping students manage stress
    g. Helping students learn better time management
    h. Greater clarity would produce more confident learners

Staff considered potential disadvantages as (no particular order):

a. Encouraging students to be assessment led
b. Spoon-feeding works against autonomous learning
c. Danger of being perceived as overly prescriptive
d. Too much direction stifles curiosity and creativity
e. Adding to staff workload and pressure
f. Encourages that learning is a fixed activity (bite-sized approach to learning)

2. Some staff did not consider that they measured IL, but rather inferred that students were learning independently by means of achievement on assessed coursework.

   However, most staff agreed that IL could be effectively measured by:

   a. coursework/exam marks
   b. quality of discussion in teaching sessions
   c. whether students demonstrated their own informed critical voice in written work
   d. the ability to appropriately self-select research materials and employ them
   e. the ability to critically reflect on their own learning
   f. the difference in scores between pre- and post-diagnostic tests

Responses from workshop participants capture some of the most important reasons for offering further guidance to students on how best to use their independent study time, as well as acknowledging the dangers of over-planning the students time for them. Their responses to the question about how IL might be measured echoes most of the ideas expressed by ME and A&H staff in interviews.

Summary of Results

The discussion of our research findings is both descriptive and analytical of the issues arising. Our study has revealed some noteworthy similarities and differences between how students studying a STEM subject compared to an A&H subject understand and engage in GIL. Further, the study has highlighted where staff and students hold similar or disparate views on a range of key topics related to GIL.

Broadly speaking, A&H and ME students and staff understood GIL in similar ways – namely, as undertaking study outside of formal contact time (lectures/labs, etc.), but within a general rubric provided by staff, who choose the topic of module sessions. Like A&H staff, A&H students conceptualised IL/GIL in terms of what they did on a modular basis, whereas ME students extended this to include making "connections between modulesLOGIC," which necessitated going "back to earlier LEARN pages" during private study time.

The tasks associated with IL are similar for A&H and ME students: they equate IL mainly with the discovery of secondary sources to be utilised in assessment. However, ME students associate IL activities not only with passing a module, but also with post-graduate job prospects. There appears to be a consensus among A&H and ME staff regarding the kind of activities that lead to students developing as independent learners. Staff emphasise the need for students to 'learn by doing' and consider that this kind of learning is most effective when it takes place in the context of peer group work.

Attitudes toward peer group work, which most staff in both subject areas consider to be key to enhancing IL, diverge considerably among student cohorts. Group work is reported to be a regular and highly valued activity among ME students, while A&H students engage in this kind of activity less often, reporting that group work is most successfully carried out when it forms part of a weighted formal assessment.

Staff and students in both subject areas identified assessment as a key indicator of IL, with teachers and students viewing assessment as a key motivator of IL activities. In addition to assessed tasks for module credit, students in A&H identify personal interest and enjoyment of a specific topic as motivating them to engage in IL. While A&H students reported being highly motivated by "pleasure" when deciding to engage in IL, ME students were concerned more with future career prospects and the "demands" of employers: if knowing more about something "will help me get a job in industry" then "I will delve deeper into that" one student suggested.

Whereas many staff expressed a belief that foundational work at Part A was equipping students with the skills needed to develop as independent learners at Parts B & C, neither group of students made connections between study skills or the kind of 'learning how to learn' activities that are embedded at Part A and IL activities in which they engaged during their second/third years. Neither A&H nor ME staff planned IL activities in detail when devising a module, and most did not give ongoing, specific guidance as to how students should be spending the time dedicated for IL on individual modules.

Most staff in both subject areas assumed that module content was sufficient to engage students for the number of hours they are expected to devote to independent work in line with module specifications, but except in the case of practical projects in ME, students reported that they did not need to work for the recommended numbers of hours in order to get a good passing grade on a module.

We found the widest discrepancy between student and staff perceptions to concern the obstacles that students might face in developing IL skills. Staff considered obstacles to IL to be mainly located in past learning experiences (e.g. the content, style and objectives of A-level teaching), while students located obstacles in the present, rooted in the design and delivery of some of their modules.

There was also a significant difference between staff and student perceptions of learning technology and its value for fostering IL. Students in both subject areas surveyed made regular and wide use of online learning resources, including LEARN (where, in their opinion, it was properly resourced) to support their understanding and assist in carrying out assessed tasks.

However, Lecture Capture was used more often and seen as more useful by ME students because, unlike A&H students, they have all-inclusive forms of assessment.

In terms of best practice relevant to fostering independent learning, staff and student views also differed. Staff viewed feedback as the most important way in which they could guide students to become better independent learners, whereas students identified the nature of assessed tasks assigned as most important – noting that practical projects best helped them to develop IL skills.

Staff, as well as students, offered a range of practical suggestions concerning how the learning environment at Loughborough could be improved to best support IL. For all staff, this included being allowed to challenge students without having to worry about incurring criticism related to module evaluations/NSS scores and to be given adequate time in their workload models to focus more on learning and teaching. A&H staff would welcome the opportunity to develop more innovative modules in which transferrable skills are embedded, assessment tasks test a wider range of skills, and challenge students by requiring them to engage with more module content. ME staff noted also the need for a "step-change" in how teaching has traditionally been delivered and students assessed in their subject area.

Recommendations

1. Programme teams to engage regularly in discussions about IL and to collaborate in developing consistent language and shared approaches to IL across modules in response to student perceptions that they must "guess" what is expected of them depending on the module tutor.
2. Given the disparity between the number of hours dedicated to IL on module specifications and the number of hours students report actually engaging in IL, give more systematic consideration to IL when planning a module and offer ongoing and more detailed guidance to students.
3. To embed more IL capacity building activities appropriate to level B & C modules that build upon those employed at Part A. For example, given that group work is deemed an essential component to enabling students to become more adept independent learners, with peer feedback singled out by both staff and students as particularly valuable, maximise opportunities across modules for students to engage in this type of learning activity, including via assessed projects.
4. Given that assessment is a key measure and motivator of IL, develop assessment packages across programmes that enable students to undertake more practical projects, which they view as being particularly helpful in becoming independent learners.
    a. Given the extent to which independent research projects support the development of higher level cognitive skills such as analysis, synthesis and evaluation is contested in some pedagogic studies, a

wider range of discursive forms of assessment should be considered, including practical group projects

   b. Avoid over reliance on forms of assessment that measure the same skills set repeatedly, and thus, over the course of a degree, may make assessment a less effective form of stretching students' abilities or enabling them to build a skill set widely relevant to post-graduate employment prospects.
   c. Specific to A&H students, given the limited time they report engaging in IL activities compared to ME students, and how this relates to the amount of material assessed per module, consider more holistic forms of assessment that encourage sustained IL activity.

5. Given available research that demonstrates a correlation between consistent and sustained use of E-learning platforms and higher achievement combined with students' reported usage levels, and the value students report placing on learning technology, make more focused and wider use of LEARN functions on modules.
6. At institutional level, enhance opportunities for staff to develop and deliver modules in a way that supports IL. This may entail making more hours available in workload models for L&T practice or giving practical help to staff – e.g. more training on the use of learning technologies.

Acknowledgments

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Appendix 1

Interview Questions – Staff*

1. What is your understanding of the term independent study/guided independent study?
2. Do you plan the students' time allocation within the whole of the module? If so, how do you do this?
3. In your opinion, what is the primary learning activity that fosters independence and analytical thinking among students?
4. What difficulties do undergraduate students face in developing critical thinking skills/independent learning skills?
5. How do you measure whether your students are developing as independent learners?
6. What are the staff/student personal qualities that facilitate or impede a student's development as an independent learner?
7. How do you support students' independent learning? What strategies do you employ in the development of modules for example?
8. What is the role of assessment and feedback in the development of independent learning?
9. Do you believe that technology enhanced learning tools have a role to play in developing self-directed learners?
10. What help/support would be useful to you to develop students' independent learning?

*Questions were not necessarily posed in this order.

Appendix 2

Student Focus Group Questions

1. Do you know how much time you are expected to spend on each 20 credits within a module?

2. Do you spend this much time on each of your modules?

3. What does independent learning mean to you? What does guided independent learning mean to you?

4. Do you feel you are guided in your learning?

5. How much does this guidance dictate your learning?

6. What environment do you conduct your independent study in?

7. Which learning resources do you regularly use? How do you decide which ones to use?

8. How useful do you perceive the following activities/resources to be to facilitate independent learning?

a. Live lectures; b. Lecture capture; c. Tutorials; d. Resources on learn (lecture notes, web links, revision quizzes, HELM, past papers, etc.); e. Reading (on and off reading list, physical and online); f. Assessments (tests, coursework); g. Laboratory classes; h. Group work; i. Study groups; j. Assistance from academic staff, MLSC; k. Other online resources (videos, Google)

9. Which learning resources do you consider to be core to your studies? Which ones do you consider to be accessory? Optional?

10. Do you believe that the way you use these resources differs between problem-based and information-based modules?

11. What help/support would be useful to you to develop your independent learning?

12. What would you consider to be obstacles to your independent learning? (sports, societies, part-time jobs, work-life balance, etc.)

13. What advice would give your first-year self (in terms of studying)?

Appendix 3

Participant Information Sheet

Developing Excellence in Independent Learning

Adult Participant Information Sheet

Mary Brewer, School of The Arts, English and Drama, Loughborough University, Loughborough, Leicestershire, LE113TU

Simon Hogg, Department of Materials, Loughborough University, Loughborough, Leicestershire, LE113TU

What is the purpose of the study? This study aims to survey staff and student attitudes and approaches to independent learning at Loughborough, focusing on students across all years in two Undergraduate programmes in distinctly different subject areas (Materials Engineering and English).

Who is doing this research and why? The research is being conducted by Dr Mary Brewer, a Senior Lecturer in English, and Simon Hogg, a Senior Lecturer in Metallurgy as part of a Teaching Innovation Award, funded by the Centre for Academic Practice at Loughborough University. The research is supported by the LSU Education Officer – Anna Holt.

Independent learning comprises, by far, the largest portion of a student's time in higher education. Even in the most contact-heavy subject, typical of STEM subjects, the module specification will allocate around two-thirds of a student's effort to independent study. We aim to understand student motivation/demotivation in independent learning in order to *inform and encourage* module development towards more individual student learning.

Are there any exclusion criteria? Staff participation is limited to those teaching principally in either English or Materials.

What will I be asked to do?

You will be asked to ~~complete a questionnaire and/or~~ participate in an interview [Delete as relevant] designed to gauge how you develop teaching activities to enable independent student learning.

Once I take part, can I change my mind?

Yes! After you have read this information and asked any questions you may have, you will be asked to complete an Informed Consent Form; however, if at any time, before, during or after the sessions, you wish to withdraw from the study please just contact one of the main investigators. You can withdraw at any time, for any reason, and you will not be asked to explain your reasons for withdrawing.

Will I be required to attend any sessions and where will these be?

Interviews will take place at Loughborough University, either in The School of the Arts, English and Drama or the Department of Materials.

How long will it take?

It is estimated that Interviews will last for a minimum of 30 minutes and not more than 45 minutes.

What personal information will be required from me?

The modules you have taken/teach as part of your degree studies at Loughborough.

Are there any risks in participating? No

Will my taking part in this study be kept confidential?

Yes, for participants in the interviews, responses will be anonymised. Permission will be sought to quote from interviews and to record interviews for later transcription/publication.

I have some more questions; who should I contact?

You should contact the researchers: Mary Brewer if you are based in English; Simon Hogg if you are based in Materials.

What will happen to the results of the study?

The data collected from the interviews will be analysed and used to elucidate best practice in effective independent learning approaches and activities. A resource will then be developed to provide informed and accessible advice and guidance for the development of teaching and learning activities that promote independent learning. Date may be included in presentations at appropriate higher education conferences such as the HEA annual conference and the Raise conference for Researching, Advancing and Inspiring Student Engagement as well as publications in relevant educational journals such as the *Student Engagement in Higher Education Journal*.

What if I am not happy with how the research was conducted?

If you are not happy with how the research was conducted, please contact Jacqueline Green, the Secretary for the University's Ethics Approvals (Human Participants) Sub-Committee:

Jacqueline Green, Research Office, Rutland Building, Loughborough University, Epinal Way, Loughborough, LE11 3TU. Tel: 01509 222423. Email: J.A.Green@lboro.ac.uk

The University also has a policy relating to Research Misconduct and Whistle Blowing which is available online at http://www.lboro.ac.uk/admin/committees/ethical/Whistleblowing(2).htm.

Appendix 4

Consent Form

Developing Excellence in Independent Learning

INFORMED CONSENT FORM

(to be completed after Participant Information Sheet has been read)

The purpose and details of this study have been explained to me. I understand that this study is designed to further scientific knowledge and that all procedures have been approved by the Loughborough University Ethics Approvals (Human Participants) Sub-Committee.

I have read and understood the information sheet and this consent form.

I have had an opportunity to ask questions about my participation.

I understand that I am under no obligation to take part in the study.

I understand that I have the right to withdraw from this study at any stage for any reason, and that I will not be required to explain my reasons for withdrawing.

I understand that all the information I provide will be treated in strict confidence and will be kept anonymous and confidential to the researchers unless (under the statutory obligations of the agencies which the researchers are working with), it is judged that confidentiality will have to be breached for the safety of the participant or others.

I agree to participate in this study.

Your name _____

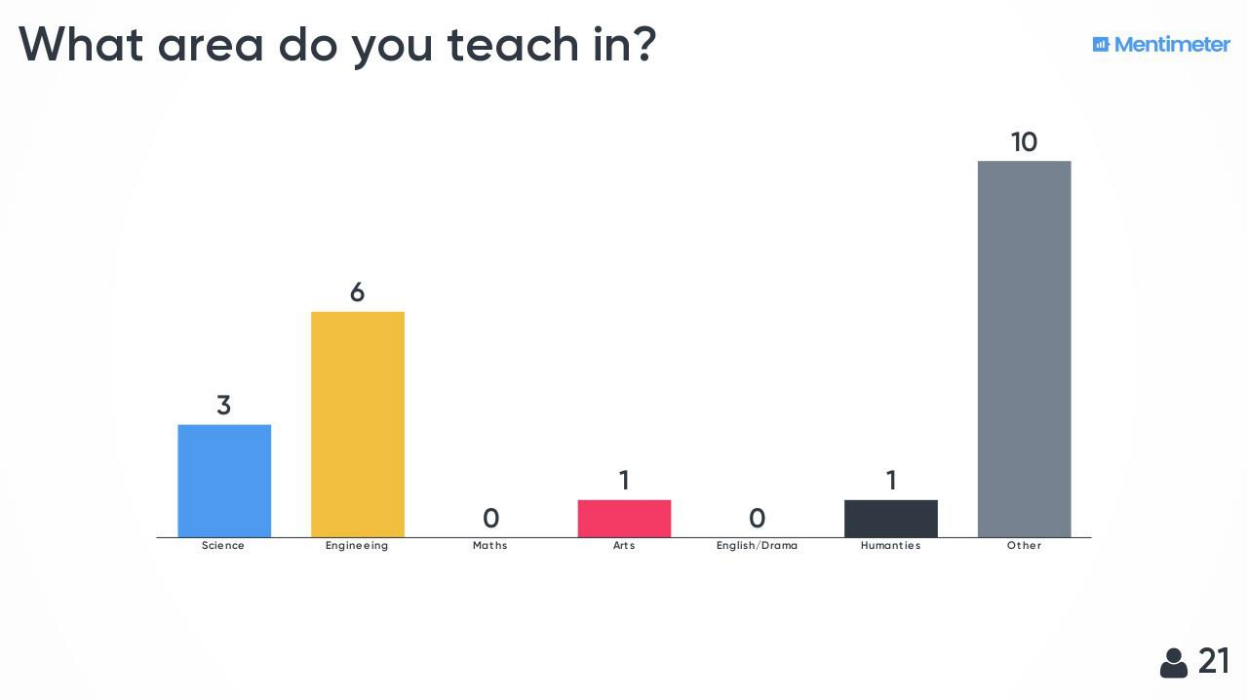
Your signature _____

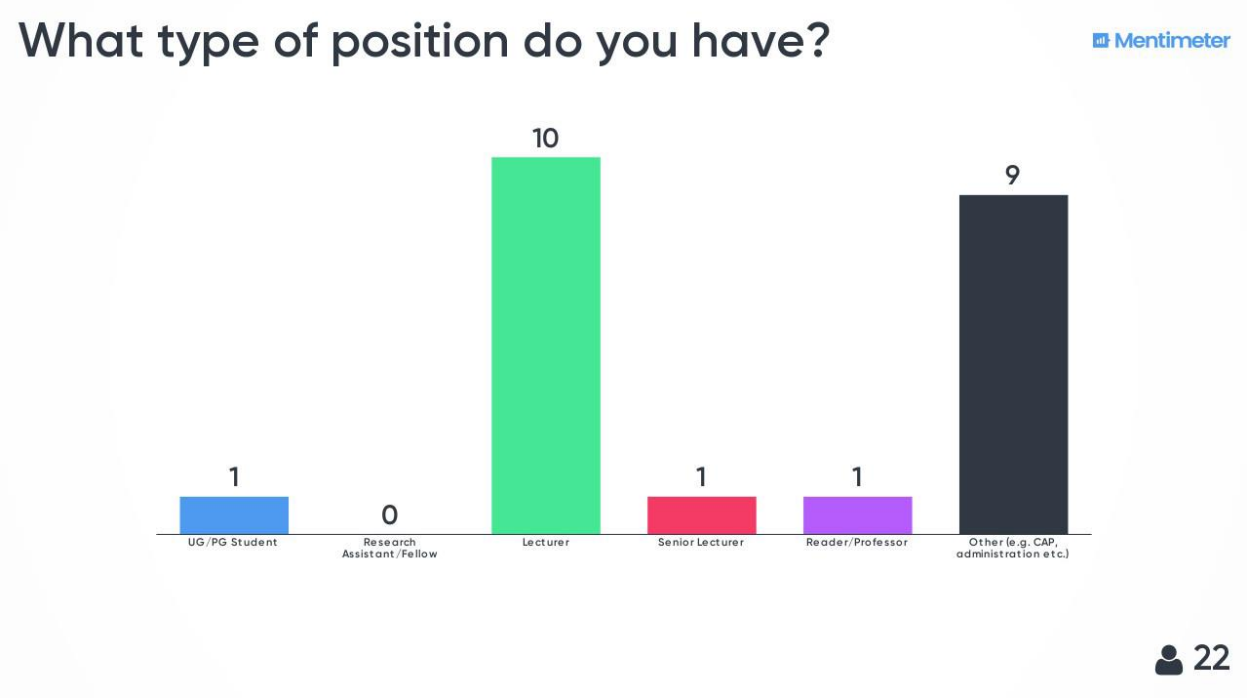
Signature of investigator _____

Date _____

Appendix 5

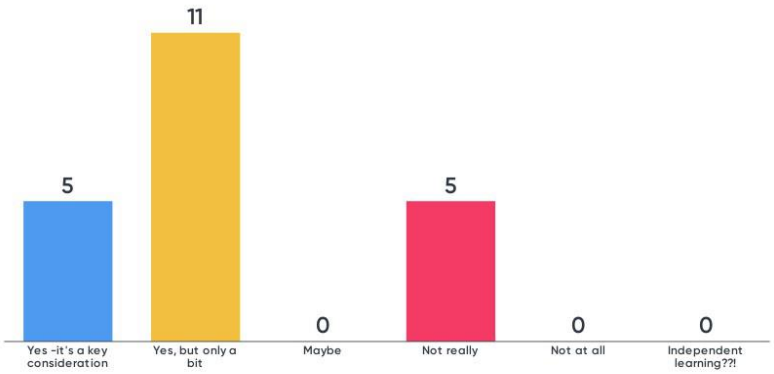
WORKSHOP: MENTIMETER POLL RESULTS





Do you consider aspects of Independent Learning when designing modules or module content?

Mentimeter



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