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The value of collaboration: raising confidence and skills in information literacy with first year Initial Teacher Education students

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Abstract

This paper will focus on the increasing staff-student-librarian collaboration, and integration of information literacy (IL) teaching, within a Primary Initial Teacher Education undergraduate course. These developments arose from an action research project which started during the academic year 2010-11. The aim of the research was to evaluate the impact of the IL teaching upon students' confidence in their abilities to find, select and use information. Results of the first research cycle (2010-11) indicated that overall, the teaching had a positive and desirable impact upon students' confidence. However, staff and student feedback suggested that mutual expectations, and the consistency and timing of support, were important factors in the development of students' IL skills. During the analysis of our initial findings, we will focus our discussion around two identified themes which relate to these issues – role and collaboration – and share our experiences from the second and third cycles of the research, which led to a transformation of IL teaching for our students in 2013-14. This paper charts our four-year journey, sharing the ideas and opportunities realised through the project and through increased collaboration as a teaching team and with our students.

This paper is based on a presentation given at LILAC 2014.

Keywords

information literacy; academic skills; collaboration; sustainability; education; transition; higher education; action research; library; UK

1. Introduction

Strategic objectives such as lifelong learning and graduate employability, and the emphasis on students becoming enquirers, able to transform knowledge into practice in their workplaces, are having an impact on university curricula, as they strive to encourage and develop certain qualities and skills (Barrie 2007; Morgan & Houghton 2011; Quality Assurance Agency for Higher Education 2008). It is widely accepted that such skills include those which define an information literate person: to be able to search for, select, organise and use information ethically and appropriately (Chartered Institute of Library and Information Professionals 2004). Lupton (2008, p. 400) suggests that the increased momentum for information literacy (IL) teaching has been driven by “student-centred, inquiry-based pedagogies” and the “explosion of information”. Further examples in the literature demonstrate how information professionals, including librarians, may be well-placed to support students in developing their IL skills. Gibson and Luxton (2009) share their experiences of embedding the subject librarian within a course, linking this to positive external examiner feedback and improved student learning, regarding referencing and essay writing. Furthermore, VanderPol et al. (2008, p. 5) evaluate a variety of US initiatives for reforming undergraduate education, and use them to demonstrate “how libraries as organizations and librarians as professionals are uniquely positioned to contribute to educational reform”. More recently, there has been an

increasing recognition of the importance of academic-library collaboration in encouraging the development of students' academic skills in a meaningful and relevant way (Kenedy and Monty 2011).

This paper will focus on the increasing staff-student-librarian collaboration, and integration of IL teaching, within a Primary Initial Teacher Education (PITE) undergraduate course. These developments arose from an action research (AR) project which started during the academic year 2010-11. After setting the scene for our chosen project, this paper will initially report the aims, methods and findings of the first year of this study. During the analysis we will focus our discussion around two of the themes identified in the research – role and collaboration – and share our experiences throughout the second and third cycles of the research, which led to a transformation of IL teaching for our students in 2013-14.

2. Information literacy and trainee teachers: evidence and opportunity

The importance of IL skills for students on professional education courses cannot be underestimated. In their report on inclusive curriculum design within education courses, Morgan and Houghton (2011, p. 3) state that reflection upon experiences and practice must be “complemented with research and policy initiatives to stimulate broader discussion about the influence of a range of factors that impact on learning and place these issues in an academic context”. In order to become reflective practitioners, students must be able to locate and evaluate those information sources, and then integrate and relate theory and policy to practice; many of these skills are commonly listed within definitions of IL. This professional requirement for teachers to reflect on their practice, with reference to theory and evidence, has long been recognised in the literature related to teacher education programmes. Vialle et al. (1997) report on a case study which indicated strong student demand for compulsory research methods input into their course. The researchers' student surveys revealed eight sets of skills which were reportedly covered to varying degrees within the undergraduate programme, including problem definition, “library skills”, “writing-process” and “communication of research findings” (Vialle et al. 1997, p. 134). Issues around the integration of these IL-related skills within teacher-education courses are therefore not entirely new and still remain relevant today. More recently, researchers, Government and schools are turning their attention to encouraging the use of research evidence by teachers. Research from the National Foundation for Educational Research (NFER) and United Learning describes a number of benefits for teachers engaging with research evidence, including the encouragement of “practitioner reflection and open-mindedness”; “more engaging [lessons] for learners”; and to support school improvement and staff development (Judkins et al. 2014, p. v). Evidence-based practice (and the skills to find and use that evidence) would therefore be a desirable attribute to integrate into education courses, helping to prepare students for their teaching careers. Supporting this, the Teachers' Standards (Department for Education 2011) make explicit links to the demonstration of good subject and curriculum knowledge and the promotion of the value of scholarship within local, national and international perspectives.

In the summer of 2010, the academic librarian for Education was approached by her academic colleague, the course leader for PITE, to discuss how to address the gap in students' academic skills, especially those related to academic writing and referencing. External examiners for the course indicated that more support for students' academic skills was required, focusing on referencing, writing and the transition between levels. It was also recommended that students should be supported throughout the course in the use of appropriate texts, which was a weakness evident in dissertation literature reviews. When both first- and third-year students were surveyed in September 2010, just prior to the intervention discussed in section 3, first years suggested that they were keen to understand the expectations placed on them as university students, while third years indicated that they felt inadequately supported earlier in the course in relation to referencing and literature searching, as these representative comments indicate:

1st year student: *I want to be shown how to reference correctly, so I am confident and know I am doing it right.*

3rd year student: *I wish that throughout the duration of our 3 years on the course we had been taught more about how to find journals on databases online so that by 3rd year it wasn't so difficult.*

When asked about the range of sources they had consulted during their course, 100% of 83 third-year respondents stated library books, 90% Google and 72% Google Books. Only 30% reported that they had used a journals database, and 17% indicated that they had sought help from a librarian. Many first- and third- years suggested that they had little or no experience of referencing prior to their university course, and though the majority of students were able to correctly identify examples of plagiarism from a given set of scenarios, the first-years in particular were concerned about avoiding accidental plagiarism. The initial feedback from our students therefore suggested that they were not receiving the desired support for them to develop their skills as reflective practitioners, able to access and use evidence to inform their learning and their teaching practice, and this appears to tally with the responses of students in Vialle et al's (1997) research. The authors of this paper embarked upon a collaborative action research project to address these issues.

3. A rationale for action research (AR)

Sander (2004, p. 1) explains that an AR approach is particularly suitable for teachers who wish to “enhance their professional practice and the educational experiences of their students”. Improving the learning experiences of PITE students was an important reason for embarking upon this research. In addition, the researchers were keen to explore whether academic-librarian collaboration can offer any sustainable solutions for addressing students' concerns, as we were keenly aware of the limited time available in the curriculum outside of placement, and the availability of staff resources (one librarian who supports the whole academic department). The collaborative nature of AR is widely discussed in the literature, as a key element in developing appropriate solutions to local problems. Cousin (2009) explores the differences between researching *with* and *on* subjects, finding that although there may be issues with researcher-participant equality and a convergence in thinking, researching with subjects has an appeal because it can “create a climate of inquiry that is generative of more disclosed, informed, subtle, appreciative, negotiated and intelligent understandings” (p. 152). Furthermore, Morgan and Houghton (2011) note the importance of AR as it shares some of the underlying principles of inclusive curriculum design, including flexibility, collaboration and transparency. As some first-year students had expressed a strong desire to understand the expectations placed on them as university students, and the researchers were keen to understand what students expected from them, this shared, open inquiry approach seemed appropriate. Norton's (2009) ITDEM model for cyclical AR provided a useful guideline for the project: **identify** the problem; **think** about ways to tackle it; **do** the intervention; **evaluate** it; and **modify** future practice.

3.1 The first cycle in 2010-11

After an initial meeting where we identified the problem to be addressed – a gap in IL-related input for our PITE students - the authors designed, implemented and evaluated a short, collaborative teaching programme. This was timely not only for the academic team and the students, but also for the librarian, who was undertaking a postgraduate certificate in teaching and learning in higher education at the time. The librarian therefore put forward the aim of the research as follows: to evaluate the impact of the teaching programme upon students' confidence in their abilities to find, select and use information, with a particular focus on referencing, avoiding plagiarism and searching for information.

Our chosen intervention for this research was a teaching programme delivered during the first four weeks of the first-year students' course. Figure 1 offers an overview of the main features of the course as it was delivered in 2010-11.

Semester 1	Session	Content
Week 4	Induction (tours also scheduled throughout the week)	<p>Whole cohort (approx. 144) introduction to the library service and the librarian, including websites for further support and information. Introduction to action research project and ethics.</p> <p>Content: Demonstration of accessing a journal article, selected by the course leader and librarian. Tutors facilitated a seminar later that week in which students discussed the content in small seminar groups.</p> <p>Set tasks: Academic study scenarios to consider for week 5's session.</p>
Week 5	Referencing	<p>One hour session for each of the five groups of approx. 28 students, with the librarian.</p> <p>Content: Discussion of set task from previous week. Teaching and activities focused on Harvard referencing.</p> <p>Set tasks: Citing and referencing activity to be completed and submitted to librarian before following week [general feedback and answer sheet provided during week 6].</p>
Week 6	Plagiarism	<p>One hour session for each of the five groups of approx. 28 students, with the librarian.</p> <p>Content: Feedback re week 5's set task. Defined plagiarism and focused on strategies to avoid it, with some work on paraphrasing and academic writing.</p> <p>Set tasks: Further reading on academic writing with questions to answer.</p>
Week 7	Searching for information	<p>One hour session for each of the five groups of approx. 28 students, with the librarian.</p> <p>Content: Demonstrations of various resources and searching techniques, with hands-on activities, all focused around an upcoming professional studies assignment.</p>

Figure 1: Teaching programme for Year 1 PITE, Semester 1 2010-11

Support was provided through email, one-to-one appointments and online materials, which continued beyond the programme outlined above. Any additional materials were embedded within the course's mandatory module on the virtual learning environment (VLE), Blackboard, and available through websites created by the librarian. These materials included a basic website about referencing and plagiarism created using an e-portfolio tool called Pebblepad (<http://www.pebblelearning.co.uk/>) and any in-class handouts, tasks, feedback, discussion forums and links to external websites were provided through an area of Blackboard specifically set up for these students. Materials were released gradually to tie in with the sessions on referencing, plagiarism and information searching. Follow-up, face-to-face sessions were delivered at the start of the students' second semester.

During the first week (known as week 4 of semester 1), first- and third-year students were asked to participate in a survey to audit their knowledge of information sources, referencing and plagiarism. Additionally, some questions were asked about their age, gender and previous academic qualifications, to increase our awareness of any diversity in our students' backgrounds. It was useful to compare third-year students' reflections with first-year students' expectations and concerns as they begin their course. Pertinent findings for this part of the study were mentioned in section 2. The responses also prompted some minor changes to the programme, so that we could address some of the student' questions and concerns regarding their academic skills.

At the start of the second semester of 2010-11, a second survey was offered to the same set of first-year students as in semester 1, so that they could share their views on the impact of the IL-related teaching input so far, and any suggestions they may have for its development. 70 students began the survey (approximately half of the first-year cohort), though not all students responded to every question. In addition, academic teaching staff (the lecturers on the PITE course) were surveyed to gather qualitative feedback about their perceptions of the impact of the teaching, and thirteen lecturers participated. For the purposes of this article, these lecturers/teaching staff will be referred to as tutors, as students often refer to their lecturers in this way. The results of these two surveys, conducted in semester 2, are discussed in section 4.

SurveyMonkey (<http://www.surveymonkey.com>) was used to create and host each survey. This system enabled the inclusion of an ethical statement at the very start, which participants needed to accept before being able to continue with the survey. Therefore participants were able to opt out of responding to the surveys, though student attendance at the taught sessions themselves was mandatory, as part of students' course curriculum. All students and staff were offered the opportunity to participate in the surveys, and anonymity of responses was maintained throughout.

Variables which could have affected the reliability of responses to the surveys included: time passed between initial delivery of the teaching programme in semester 1, and completion of the follow-up surveys in semester 2; the effect of different academic backgrounds across the first-year cohort; a fear of admitting a lack of knowledge; and a desire to answer in a way that would please the researcher.

It was felt that surveying students later in the year, rather than directly after the four weeks of the IL-related teaching input, might offer a more reflective and detailed insight as they have had the opportunity to put into practice what they have learned during the first semester. To address the timing issue and potential impact on reliability, surveys for first-year students in both semester 1 and semester 2 were similar in structure, so that some level of comparison could be made to ascertain their developing knowledge of referencing, plagiarism and information sources. Students were also reminded during the survey of the sessions that took place (Figure 1) and the intended learning outcomes. Question formats included: a rating scale to judge their level of confidence in referencing, avoiding plagiarism and locating information sources, and any perceived impact of the teaching programme in relation to these; multiple choice questions to identify correct examples of references and plagiarism; and open-ended questions for them to offer their perceptions and ideas about the IL teaching. This was intended to encourage students to make reference to their previous academic experiences if appropriate.

To mitigate the effect of students not wanting to admit to a lack of knowledge or answer in such a way as to please the researcher, their tutors were surveyed at the same time. A comparison of lecturer and student responses was desirable, not only to evaluate the collaborative aspect of the research, but also to compare feedback on the impact of the teaching 'in practice'; that is, students' demonstration of their learning in formative and summative course assignments. The librarian also attended an assignment moderation meeting between semesters, to see examples of students' work and provide relevant feedback. The meeting offered a useful 'snapshot' of issues related to

academic writing and use of information. Furthermore the research was jointly presented by the researchers to the students, to explain the research context and ethical statement. Instructions were included in the survey, which aimed to boost the credibility of the research, by encouraging honest responses with no risk of penalty for not participating or for offering negative feedback.

4. Results

Five themes emerged during the analysis of both the first-year students' survey and the tutors' survey, which were each administered at the start of semester 2 in the academic year 2010-2011: *impact and timing; role of academic teaching staff (tutor) and librarian; collaboration and consistency; online learning and support; and gaps in the teaching.*

4.1 Impact and timing

Throughout the student survey, students indicated that the teaching had a positive impact on their confidence, and their comments about the impact upon their referencing skills were particularly positive, with one student encapsulating this as follows:

The teaching has definitely made a big difference because I didn't have a clue about referencing before I came here and in lectures the lecturers concentrate on the subject content rather than how to actually write essays. The teaching definitely made a difference to my learning...

65 out of 67 respondents strongly agreed or agreed that they felt more confident in referencing than they did at the start of the course, and 94% of respondents were able to select the correct reference for a book, compared to 65% in the semester 1 survey. Similarly, 63 out of 64 respondents strongly agreed or agreed that the plagiarism teaching had been important for helping them prepare for assignments. 54 out of 63 students disagreed or strongly disagreed with the statement: 'I don't think the teaching made any difference to my learning about searching for information or accessing resources.' However students seemed to need more encouragement to use sources beyond books and websites: 38 strongly agreed or agreed, while 21 disagreed or strongly disagreed, that they had used journal databases.

In their survey, tutors supported the notion that there had been a positive impact upon student learning. Nine tutors indicated that they strongly agreed or agreed that they had perceived a positive difference in the first-year students' referencing. They note an increased awareness of academic skills and support:

I have noticed a big difference in terms of [their] attitude to referencing and academic skills, as the higher profile has also helped demythologise this area of their work. They now know what academic skills they should be aiming for and importantly know where to get consistent help.

It was clear that the majority had engaged with far more texts than in previous years although there was a heavy reliance on sources from websites rather than academic articles and journals.

I have heard many of my personal tutees ... commenting on the impact and value of the sessions ... This has definitely resulted students' work being well referenced and include more journal articles than I've seen in previous years. Therefore their written work is substantiated with more recent and current theories/research in subject fields.

There were conflicting student viewpoints relating to the timing of the teaching input. Some students suggested that teaching just prior to an assignment, or working with the librarian to reflect upon feedback, may be more valuable for their learning:

I learnt more about referencing from the second teaching input... I think this was because I had received feedback from my assignments which allowed me to ask...more specific questions...

It would be useful to have a lecture where we can bring along our assignments and for [the librarian] to help us understand where we went wrong.

I thought the initial lessons...were informative, however I would have benefitted more had they not been in the initial weeks as there was so much information to take in...I think sessions closer to starting our initial assignment would have been more useful as it would have been fresher.

I would have liked more chances to have a lesson throughout this term, and perhaps make the classes optional.

4.2 Role of academic teaching staff (tutor) and librarian

When asked whether they received IL-related teaching from tutors, students' responses were varied. 40 out of 67 students disagreed or strongly disagreed that their tutors provided information about referencing in their teaching, and a similar number (37) disagreed or strongly disagreed that information about plagiarism was included. However, more students agreed or strongly agreed that information about searching and accessing information was provided in tutors' teaching (32 compared to 20 who disagreed).

Ten out of 11 tutors reported that they disagreed or neither agreed nor disagreed that they expect new students to have some knowledge of referencing (although one student commented that 'a lot of the tutors assume we know how to reference'). Seven tutors strongly agreed or agreed that they do have a role in teaching referencing, however all tutors strongly agreed or agreed that it was important for the librarian to teach referencing, plagiarism and literature searching. Tutors' comments suggested that they encourage or reinforce these skills rather than teach them, through preparation for and marking of assignments. Tutors noted the potential strengths of librarian-led sessions, but strongly suggested that it is the student's responsibility to develop their academic skills:

The focused sessions have meant all students have had the same input and the input has not been watered down by other course teaching demands...

I see the academic librarian in a supportive role, scaffolding the development of initial research skills in students.

[A gap in student learning] is for them to learn to use what is available. I have put masses on Blackboard but they simply do not refer to it...

The students need to spend time in each year refreshing their skills so that they take responsibility for their own academic achievements and don't expect either staff or librarians to do their work for them.

4.3 Collaboration and consistency

Comments across both surveys demonstrated the strength of feeling about the importance of collaboration between librarians and academic staff, for reasons including: consistency of support for students; supporting students through transition to HE; and improved communication and promotion of available support. Students commented on tutors' 'different expectations', and suggested that there was little input about referencing and information sources in tutors' sessions, with one student commenting:

Lecturers provide what books would be useful, but have not really discussed about searching and accessing these.

On the other hand, academic staff outlined their perceptions regarding collaboration between librarian and tutor, to ensure consistency of support during transition and beyond:

It is important for the tutors and the academic liaison librarian to work together to support students in the transition to undergraduate study.

It is good that academic staff and librarians can work in collaboration for the benefits of the student experience. I believe that academic tutors should reinforce the messages given by the academic liaison librarian.

Please could you run a session for [staff]...so that we can support the students in their literature reviews.

...[Reminder] sessions for staff? Sometimes students report that the feedback is not as consistent as they would like.

[Students suggested that they] could look at a specific assignment and be given tasks related to this. Perhaps this could be done in collaboration with those subject tutors?

4.4 Online learning and support

There was a noticeable increase in the number of emails sent to the librarian by first-year students, requesting support with referencing and information searching. 37% of students reported that they had asked a librarian for help during the first semester, in contrast to 17% of third-year students throughout their entire course. Though responding to each email can be time-consuming, it provides the librarian with an insight into common topics and questions, which is valuable in building subject knowledge and offering timely support.

One student suggested more online materials:

Online modules on referencing so we can reference back to this and look at them when needed rather than workshops when we don't have assignments as it is more likely to stick in my head.

The librarian developed a simple website using Pebblepad (<http://www.pebblelearning.co.uk>) which offered further advice about referencing, responding to common questions. Guides on research databases and search strategies were also provided through a social network created by the librarian, and through the mandatory module on the Virtual Learning Environment (VLE). However, in the survey, students reported a lack of familiarity, awareness and usage of these online resources, with one student commenting on the referencing advice website:

We never received tuition on how to use this programme so...I do not use this.

4.5 Gaps in the teaching

Some students appeared to be more confident about referencing by the second semester, and suggested that they wanted to move on to addressing other problem areas, including: finding and referencing Government and curriculum documents; searching journal databases; and navigating online library resources. Comments indicate that their focus is shifting away from referencing, and towards broadening their access to discipline-specific academic information:

I would like extra help with [searching for relevant journal articles for use in my assignments and extra reading] if possible as I find I tend to use the same sort of resources in my reading.

I feel there could be further support with searching for information now that we have had the chance to have a go.

I don't know how to use [journals] in assignments...Is it just a process of elimination...?

Academic staff invited the librarian to an assignment moderation meeting between the first and second cycles of teaching, to offer feedback in relation to referencing and information use. The small number of assignments examined showed that some students were not yet using a wide range of academic sources, and they did not appear confident in weaving their interpretation of the literature into their writing. In their survey, tutors offered ideas for further student support:

We need to look at an initial session of [writing in an academic style] in the first few weeks of the course and offering regular workshops throughout the year.

Many students...incorporated a range of non-academic websites, so will need to develop critical evaluation skills and demonstrate this in their writing.

5. Analysis

Survey feedback suggested that the teaching had a positive impact upon students' confidence in referencing and literature searching, thus addressing the original research aim. Tutors reported a greater awareness of academic skills and available support, and some positive differences in referencing and the range of information sources being cited in students' work. Though the value of the librarian's input appeared not to be in doubt, the emerging data from the surveys suggested that further enhancements could be made, particularly in relation to tutor-librarian collaboration, sustainability and consistency of support. These factors would appear to be intrinsically related and merit further investigation. Therefore we will now focus our analysis on themes 4.2 (role) and 4.3 (collaboration), with reference to our experiences and reflections during subsequent cycles of the research during the academic years 2011-12 and 2012-13, and how this transformed our approach into 2013-14.

5.1 Rethinking our approach

In their case study of research methods-related input into teacher education courses, Vialle et al. (1997) noted a strong student demand for greater teaching input to support their research activities, but also some reluctance on the part of academic staff to increase the coverage of some aspects of information and research skills within the course, though few reasons are given for this. It is also interesting to note that the potential for input from a librarian was not mentioned at all in Vialle's discussion, particularly in relation to the "information location and library skills" component (p. 135). In our research, tutors shared their perspectives on whose role it was to teach IL-related skills, indicating that librarians do have a large part to play in the teaching of referencing, plagiarism and literature searching. Tutor comments under 4.2 and 4.3 suggest possible concerns around providing correct and consistent support, as well as a perceived lack of personal knowledge in using the various systems available to support information seeking. They may also feel that there is not time in the subject sessions to cover academic skills (suggested by the comment in 4.2 about input not being 'watered down' by other demands). Therefore their comments suggest a desire for greater input from the librarian for both staff as well as students.

Student comments appear to show the effect of any perceived reluctance from tutors to engage in IL-related teaching. Comments in 4.2 and 4.3 suggest that some students noted a distinction between the level of support tutors would offer in relation to referencing, plagiarism and information

sources, and that which the librarian provided both face-to-face through the teaching programme, subsequent appointments and sessions, and online through email and websites. It may appear to students that their tutors are making assumptions about what they should or already know about academic research and writing, not realising that some tutors expect students to 'take responsibility' for developing those skills (tutor comment in 4.2). Such disparities in student/staff expectations are not uncommon. For example, Gourlay and Deane's (2012) research suggests that staff expectations of students' writing skills may be too high, particularly where there is a focus on external skills support and the generic mechanics of writing; we return to this 'externalisation' idea in a moment. Furthermore, our survey research indicated that students arrive with a wide range of academic experiences, including A levels, Access to HE qualifications and other vocational awards including CACHE qualifications (Council for Awards in Care, Health and Education: CACHE 2011). Not only does this show that we cannot make assumptions about what our students can and should know about 'the rules of the game' at HE level; this also had an impact on survey responses as some students felt the sessions could be optional, while others deemed them necessary for their learning (although they may have felt overwhelmed so soon in the course). Rightly or wrongly, if students perceive the support from staff and the librarian as separate, and it has not been made explicit that there are certain expectations placed on them to seek support and develop their skills as they make the transition across levels, then this suggests that true collaboration had not yet been achieved.

With the benefit of hindsight, though the authors of this paper collaborated to agree on the content of the teaching programme, developed some activities together (such as the journal article task in week 4), and attempted to convey a united approach throughout with regards to the value and relevance of the additional teaching and related research, the programme itself was still *in addition* to the students' regular timetable, and weeks 5-7 were solely taught by the librarian. After this time, these slots on the timetable became self-directed study for students. Was this externalised IL teaching truly beneficial to student learning? Would this have a negative impact upon the students' perceptions of the relevance and transferability of the IL-related teaching? These are questions which we would return to throughout the second and third cycles of the research.

There is evidence in the literature to suggest that keeping the sessions separate from the discipline could be detrimental to student learning. Weigel (2005, p. 55) states: "If education is about anything, it is about cultivating the skill of critical thinking". Weigel (2005) explains that students should have opportunities within their course to develop certain capabilities, such as critical thinking, comparing approaches to problems and learning about "unfamiliar knowledge domains", and self-confidence in dealing with those problems (p. 56). Suggested methods of creating those opportunities include collaborative research with staff, peer learning groups and mentoring (Weigel focuses on the role of technologies in helping to achieve this). The key point for us here is the principle of developing critical thinking skills *within the course*, and *in collaboration with academic staff*, though this could easily be extended to a teaching team to include librarians. Furthermore, a study skills approach - also referred to as a skills-based or deficit model of extra-curricular support, where support is generic and provided as an 'optional extra' to the student's subject - is criticised by Haggis (2006), who suggests that it presupposes there is some problem with the learner. Instead, both Haggis (2006) and Lupton (2008) emphasise that academic skills - such as writing, referencing and information searching - should be taught within a learner's discipline, as they are intrinsically related. These assertions are supported by Bailey et al. (2007) and Dobozy and Gross (2010) who found that their optional, additional skills modules had limited success, with Dobozy and Gross (2010, p. 97) stating that "strategic collaboration...would probably be more effective".

We came to this realisation during the second and third cycles of our research. Based on the results of the first cycle, we felt it worth continuing with our teaching programme and decided to develop the content and delivery as far as possible with the staff and resources available to us. In 2011-12 and 2012-13, we were unable to change the timing of the four-week programme and find other ways to embed the sessions within the course. However we were able to alter the content to

reflect the search process, from topic definition through to search strategies, evaluation and then referencing, all linked to upcoming assignments. It was intended to shift the initial focus away from the mechanics of referencing and towards a more holistic IL learning experience. Sessions were two hours long to accommodate more activities and feedback, and an upgrade to the VLE enabled the creation of structured, embedded online activities and resources. In addition, the institution's academic tutoring system enabled tutors to track students' grades and offer feedback online, and work with each student to put in place targeted academic skills support. We believe students continued to benefit from this teaching programme. There was a much greater volume of requests for support from both staff and students across all years of the PITE course, as librarian visibility increased and the teaching input became established. Graduates in 2012-13 who also had new IL teaching input as a result of this research achieved a 50% increase in First Class Honours degrees compared to the previous cohort. Though this cannot be directly attributed to IL-related input, external examiners commented that in stronger assignments, 'students demonstrated high levels of critical engagement with a very good range of literature'.

We continued to survey students before and after the teaching programme, comparing responses with the first research cycle. In the meantime, as the visibility of the librarian increased, teaching staff and the librarian began to generate new, shared ideas for future development, through meetings and informal discussion. This proved to be a vital aspect of building relationships and for developing greater collaboration.

5.2 New opportunities and small steps: transforming the 2013-14 input

During our second and third research cycles with first-year students in 2011-12 and 2012-13, academic staff and the librarian found new opportunities to discuss issues identified through the research. One example worth sharing is the referencing of sources and assignment marking. It became apparent that students were becoming increasingly concerned with assignment feedback around referencing, despite there being in place a standard university Harvard style for all to follow. The librarian would often be asked by students for an appointment to discuss their feedback, querying why (from their perspective) one tutor has marked differently to another with respect to referencing, and why they appeared to get a lower referencing grade than they would expect when they have followed the Harvard guidance. Clearly this situation was not a desirable one, as it put the librarian in a difficult position between students and their tutors. Instead, the librarian would contact tutors to discuss common issues that would crop up and in time this resulted in a team meeting about referencing. The first outcome of this was a referencing policy, fully supported by all academic staff and the librarian, which tallied with the university's Harvard guidance but also offered more subject-related examples and addressed common questions. From 2013-14 this was published in the students' Course Handbook. Secondly, it became apparent that tutors and the librarian felt the same way about the mechanics of referencing; the guide was available to follow, and over and above that, it is *consistency* throughout a piece of work that was most important. The real issue for tutors was the academic writing - the selection and synthesis of sources - however this was seemingly not transparent to students. As a result, the marking grid for all assignments in the course was amended, so that the referencing section was split further to reflect feedback on mechanics of applying Harvard, but also on the selection and use of sources in students' writing. This development has since helped students, tutors and the librarian. Students can now see a more consistent approach to feedback, and expectations are becoming clearer; tutors are able to target their feedback and demonstrate expectations to students; and the librarian can offer support to students knowing that a consistent message is being conveyed about referencing and writing. The whole process strengthened the relationship between academics and the librarian, resulting in a total transformation of the teaching input in 2013-14, as well as a much closer working relationship which continues to this day, involving librarian attendance at more team meetings and away days, and more opportunities for informal chat about new ideas for the curriculum.

With the backdrop of these successful developments in the course, the teaching team (*which includes* the academic librarian) began to address ongoing issues around consistency of support,

the timing of the IL-related teaching input, and how we might achieve a more strategic collaboration for the benefit of our students. One example that we could aspire to is put forward by Kenedy and Monty (2008). They propose team teaching between a variety of professional support and academic staff, through dynamic purposeful learning (DPL). Students work together with tutors and a variety of professional support staff in the classroom, developing their academic skills by completing an assignment in stages, with the opportunity for feedback throughout the process. It is suggested that this may facilitate more embedded academic skills support, through a sequenced and developmental approach within a discipline (Kenedy and Monty 2008; VanderPol et al. 2008). As Kenedy and Monty (2011, p. 117) emphasise: “Learning is more effective when there is a purpose or outcome. It helps student see the course, the information literacy session, and the assignment as a complete critical thinking cycle”.

In 2013-14, we offered an induction day in week 4, in a similar fashion to previous years. However weeks 5-7 were replaced in favour of shorter, ‘bitesize’ input throughout mandatory modules in the first year. Librarian and tutor would teach in the classroom together, working with students on formative tasks related to academic writing and referencing, and encourage discussion between everyone in the classroom around specific assignment guidance, resources and journals. Students were able to interact with both the tutor and the librarian, and direct the discussion if they wished, and this collaboration in the classroom proved to be a powerful learning tool. Kenedy and Monty (2011, p. 119) state that this approach “often encourages higher participation levels than a rather more traditional approach of librarians presenting without the presence and active participation of the faculty member”. Staff were able to learn from the librarian, addressing their earlier requests for more support; students could benefit from a rich pedagogical discussion around academic skills and application to assignments; and the librarian’s role as a member of the teaching team was cemented early on. As these sessions were shorter and ongoing, they were more sustainable for the librarian, bearing in mind her wider role with the whole academic department. Indeed, the same principles are starting to filter into other courses in the Education department and have proved popular with staff and students.

Though we consider this to be a positive step forward, there is potentially more that could be done. Kenedy and Monty’s (2011) DPL approach in its complete form encourages the librarian and tutors to plan the course, including the assignments themselves, months in advance. There should be an IL-specific assignment to work on in stages, with opportunities for feedback and improvement, and DPL opportunities are embedded throughout the entire three-year course. We are currently realising the benefits of team teaching in the classroom, but have not yet progressed beyond small, formative tasks. We would need to plan the curriculum further and well in advance to ensure team teaching and activities continue sequentially beyond the first year.

Furthermore, the teaching team could include professional skills staff beyond the librarian. This notion finds support in Secker and Coonan’s (2011) ‘New Curriculum for Information Literacy’ (ANCIL). Designed as a holistic curriculum encompassing a wide range of academic skills, it is intended to be delivered by academics and various members of professional support services. The ANCIL team recommends that the institution audits the individuals and departments who would have a role in delivering the curriculum. University of Worcester staff, including the authors of this paper, were asked to participate in Wrathall’s (2012) case study, which provided a valuable opportunity to undergo this audit of skills and roles. The results of this project are available on Wrathall’s (2012) wiki (see References), and the University of Worcester is known as ‘Case Study 1’. This exercise is invaluable for realising the expertise available across an institution and how those skills overlap and relate. Some of the gaps in teaching mentioned by students in our research - and issues around transition and consistency for all students - could potentially be addressed if professional support colleagues were involved in teaching at appropriate points in the course. Perhaps the challenge here will be adapting the working practices and managing the cultural shifts required to provide integrated and timely academic skills support for all students, to be delivered by a range of professional support staff within existing university curricula.

6. Conclusions

Throughout the research process, we came to realise the value of collaboration as a teaching team, for the benefit of our students' learning. While this in itself may not be revelatory, the journey to achieving greater teaching collaboration proved to be a long but enjoyable one. We recognised that collaboration both outside and within the classroom, between academic staff and librarian, could offer further benefits in relation to sustainability and consistency of IL support in the long-term. This could also potentially address other themes from the initial research, such as timing and knowledge gaps identified by students. In 2013-14, we made significant changes to the teaching input. We adopted some of the ideals of dynamic purposeful learning (Kenedy and Monty 2008; 2011), and IL teaching was integrated within students' mandatory modules and team-taught by librarian and tutor, to offer a more relevant and tailored experience. Early indications are that this has realised new benefits for staff and students, in terms of consistent messages from the team, visibility of support for both staff and students, and relevance of the teaching in relation to assignments.

Collaboration has progressed beyond the teaching input discussed in this paper. Students are now actively encouraged to take up new opportunities to become partners in teaching and learning, researching with tutors and leading on course developments. A large number of students participate in a *Working in Partnership* group, which takes responsibility for selecting the priorities for the course action plan, developing practical solutions and projects to address those priorities with academic staff, and communicating with all students and staff to share these developments and achievements. The students also design and publish a regular newsletter called *Intuition* (University of Worcester 2014). One edition of the newsletter featured an interview held with the librarian, which was led by one of the students. This focused on discussing the work we have done this academic year, offered 'top tips' for academic research and writing, and provided an opportunity to promote the range of available skills support for students in the university. While it may be a long-term challenge to transform a course curriculum - integrating IL teaching and fully realising the potential benefits of more recent approaches such as DPL and ANCIL - it is possible to identify and create new opportunities for collaboration, which can lead to a more relevant and holistic learning experience for all students.

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