
Introducing problem-based learning into one-shot information literacy instruction at Waterford Institute of Technology Libraries

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INTRODUCTION

For many librarians involved in information literacy (IL), applying best pedagogical practices to IL instruction has become commonplace. Librarians have adopted and adapted various educational ideologies and approaches to their practice, and reaped the rewards for their efforts. This article discusses the use of problem-based learning (PBL) techniques in IL instruction for final year nursing undergraduate students at Waterford Institute of Technology (WIT) Libraries.

WIT is a third-level academic institute in the south east of Ireland with 6000 full-time students. The library learning support team is responsible for designing and delivering a suite of IL instruction sessions aimed at undergraduate and postgraduate students, and over 1000 staff members. WIT Libraries adopts an active learning, student-centred approach to all IL sessions. As Hsieh & Knight stated, 'there is increasing evidence that

supports the belief that active, experiential educational experiences are more transferable than passive, lecture-based instruction.'¹

In WIT, IL instruction is still largely delivered as 'one-shot' sessions, despite its being somewhat integrated into the curriculum for some undergraduate courses. Like many other librarians delivering IL instruction, we are often considered 'guest lecturers' in a wider academic programme or module. The undergraduate nursing programme in the School of Health Sciences in WIT is one programme that integrates library instruction into its 'learning to learn' module for all undergraduate students. This means that we formally meet all nursing undergraduates once per academic year from first to fourth year for mandatory IL instruction.

A PBL approach aligns well with the real-life, problem-solving, evidence-based, practical skills nursing students require in their day-to-day study and work practice, making them an ideal group with which to introduce PBL techniques in IL instruction. We felt it was appropriate to focus such a change on final-year level students, as they could draw on the skills acquired in their earlier IL instruction to aid them in tackling the problems presented.

PROBLEM-BASED LEARNING AND INFORMATION LITERACY INSTRUCTION

PBL has developed as a popular pedagogical practice, particularly in business and health sciences education; it occurs when problem- or case-based scenarios are used as primary methods to stimulate thinking and learning in the learning environment.² Students involved in PBL typically work in small groups over a period of time on a pre-determined problem. They must rely on their prior knowledge and experience, as well as additional support lectures or seminars, and work as a group to tackle the problem or scenario. PBL facilitators are assigned to small student groups to guide and support the learning process. Students are often assigned specific roles within their groups, and self- and peer-assessment is often part of the PBL process.

There are immediate and obvious ties between PBL and IL. Students participating in PBL initiatives must be able to use their prior experience and knowledge of the problem to identify the gaps in their knowledge base; they are expected to identify these gaps in order to address the problem at hand. Identifying information needs, as

well as locating, using and evaluating information in an ethical manner are typical IL skills³ that are particularly important in the PBL classroom.

The relationship between PBL and IL has been highlighted elsewhere in the literature. Breen & Fallon suggest that 'IL instruction is key to the success of PBL', adding that students must be able to identify their information need in order to work on the problem presented.⁴ According to Dodd, students involved in PBL require more IL skills than those studying in more traditional learning environments.⁵ Dodd et al. say that PBL creates an 'ideal arena in which to sharpen and focus' IL skills.⁶

While it is becoming widely recognised that IL plays an important role in PBL education, using PBL to deliver IL instruction is less commonly referenced. When we consider that PBL traditionally requires a period of sustained access to smaller student groups, and that IL instruction is often delivered as one-shot, stand-alone sessions, this is not surprising. Adopting PBL in IL might also be inappropriate when we consider that for IL sessions, attendance is often not mandatory and assessment not possible.

Despite this, PBL can be effectively used in IL instruction, as demonstrated by Munro⁷ and Kenney⁸, both of whom have written about applying PBL to one-shot library training. Munro describes the pedagogical value of taking a 'modified' PBL approach to IL instruction and emphasises the value of using directed tasks to focus and pace the learner. Munro says that classes taught using the modified PBL approach 'tended to generate far more student participation and engagement than traditional lectures.'⁹ Kenney uses PBL in her IL instruction to provide an experimental introduction to library training, claiming that PBL provides an opportunity to interact with students in a 'more dynamic environment.'¹⁰ These positive experiences and desirable outcomes acted as primary drivers for implementing problem-based information literacy (PB IL) instruction in WIT Libraries.

PROBLEM-BASED INFORMATION LITERACY INSTRUCTION: THE WIT LIBRARIES EXPERIENCE

Although integrated into the nursing studies module, IL sessions for nursing students at WIT are still very much delivered on a 'one-shot' basis. Introducing a PBL approach to research skills happens within a very limited timeframe of 50-60 minutes (session 1). Students' final IL session

(session 2) is given entirely to the development of critical thinking skills and is delivered immediately after session 1. Allowing students to work on the problem over time, a common attribute of PBL, is not possible in this instance. In addition, as attendance is mandatory for students, sessions are often fully subscribed, with attendance at a maximum of 25 students per session. With larger student groups to facilitate, as well as tight time constraints, we were working in a very atypical or uncommon PBL classroom environment.

To address some of these issues, we felt it was appropriate to apply a series of timed and clearly guided tasks throughout the PB IL session. This is also in line with Munro's use of 'directed tasks' during her PB IL instruction.¹¹ Our final-year nursing PB IL sessions were thus structured as follows:

Introductions

Create team: 5 minutes

Students were invited to get into groups of three, and assign themselves to the roles of seeker (who performs the actual database searches on behalf of the group), scribe (who records the process and items retrieved, as well as keywords and resources used) and spokesperson (who reports back the findings to the overall group).

Brainstorm topic: 10 minutes

Student groups were asked to generate a list of ideas, keywords, search terms and possible resources for tackling the problem.

Tackle the topic: 20 minutes

Students were actively encouraged to access and search the range of online database resources available to them through the library website, making use of the keywords and search terms they had generated at the brainstorming stage. The overall objective at this stage was to locate and evaluate a selection of the available literature.

Present findings: 15 minutes

This took the form of a plenary group discussion centred around the classroom whiteboard. Student groups were encouraged to share their findings assisted by a facilitator. This gave all the groups an opportunity for dialogue, reflection and review.

Wrap-Up

Throughout the session, the librarian's role was very much that of facilitator. We started off by

setting the scene for the students. We explained that the session was very much workshop-based, centering on a problem scenario. This, in turn, acted as a trigger or a prompt for the development of students' IL or research skills that set them on course for working on their final-year projects. We felt it was important to stress on a number of occasions that the strict time restriction imposed for each task was for the purpose of the session, and that students should not impose similar time restrictions when applying the model to their real-life research projects.

The basis of the workshop involved actively challenging the students to work together in small groups on practical and engaging real-life research problems. As they completed each of the set tasks, they developed their research skills in an incremental fashion and were provided with a framework for their long-term project work. Creating challenging and engaging problems, or triggers, for use in PBL can be difficult. There are three streams of nursing studies in WIT: general nursing, psychiatric nursing and intellectual disability nursing. We decided to base the problems around particular 'real-life' conditions within each stream, with the main focus very much centering on the actual research task we required the students to complete. See Fig 1 for the sample problem used with the psychiatric nursing group.

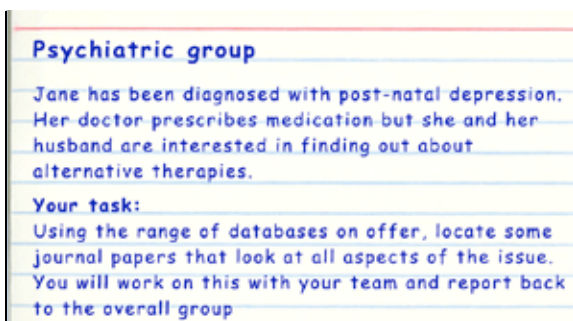


Fig 1: Sample scenario

Students are presented with the problem at the very start of the PB IL session, and this drives the session right through until the end.

FINDINGS

In order to consider whether a PBL approach to IL instruction was successful, we created an online feedback form in Survey Monkey that consisted of ten questions (nine rating scales and one open question). We ran the survey immediately following training and received a 65% response rate. The statistics in Fig 2 provide a snapshot of the overall findings.

93% rated the overall value of the library training programme as excellent or very good.

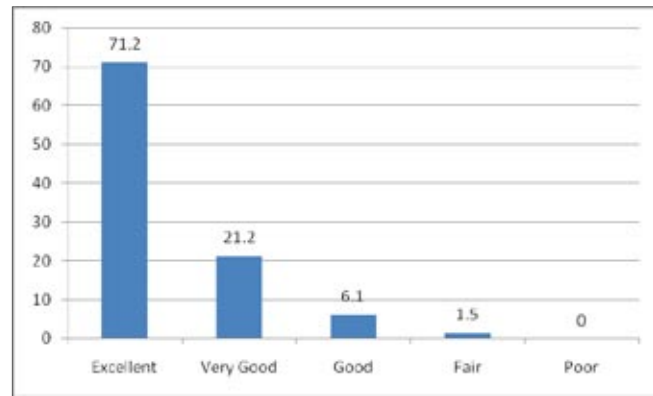


Fig 2: snapshot of overall findings

This result indicated that the students were generally very positive about the PB IL workshop approach to their training. 93% rated the overall value of the library training programme as excellent or very good. When asked about the delivery of the programme, 97% either strongly agreed or agreed that the programme was practical and useful for their level (Fig 3). These results indicated that the students particularly enjoyed the hands-on, task-based nature of the PB IL workshop and felt they learned from it.

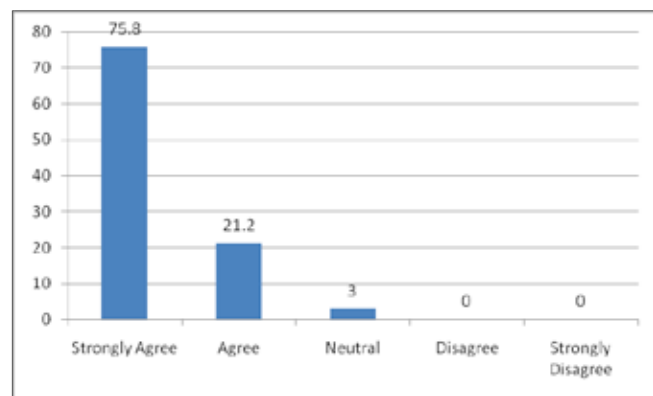
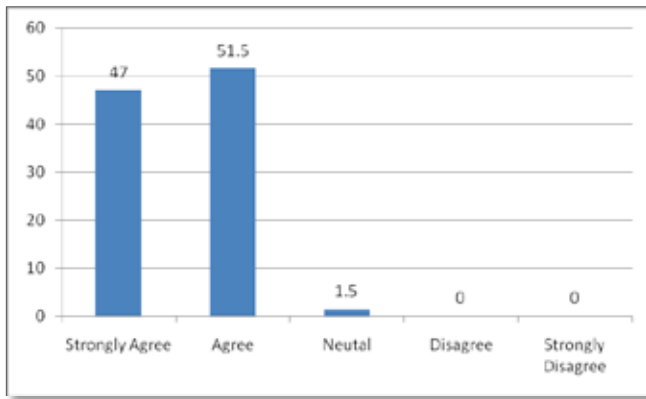


Fig 3: satisfaction with programme delivery

98.5% of respondents reported feeling comfortable and confident about using the library resources to source information for their final year projects (Fig 4). This result indicated that students' comfort and confidence levels regarding library use were enhanced by the PB IL workshop approach.

Fig 4: confidence in using library resources



Individual student comments reinforced the statistics and were also very positive. Examples include the following:

'I'm now more confident. The session was really important for me.'

'Very useful in assuring students of their abilities.'

'A simple understandable breakdown of research methods.'

'Beneficial for me for my final year.'

Our own personal observations during and immediately after the workshops underline the fact that students were energised and enthused throughout the sessions. They appeared to enjoy the practical hands-on nature of the tasks and to learn from them. In discussions with individual groups, students told us they never considered taking the time to brainstorm their research topics before, often choosing to dive straight into database searching instead. All these elements energised our efforts as facilitators. The positive anecdotal feedback we received from the nursing faculty at WIT following the workshops was also very encouraging.

CONCLUSION

Delivering IL instruction using PBL can be challenging. A considerable amount of preparation prior to sessions is required in order to produce effective and workable problem scenarios. During sessions, making use of specific tasks can greatly facilitate a PBL environment. Following our experience with the final-year nursing students at WIT, we would say that PBL can be effectively used in an atypical, 'one-shot' learning scenario. Based on the feedback from the first year of the programme, we intend to continue to integrate PB IL instruction into the final-year nursing programme. We also have plans to apply the PB IL model in other subject disciplines, such as our final-year engineering IL sessions.

NOTES

- 1 C. Hsieh and L. Knight, 'Problem-based learning for engineering students: an evidence-based comparative study', *Journal of academic librarianship*, 34:1 (2008), pp. 25-30
- 2 T. Barrett and S. Moore, 'An introduction to problem-based learning', in T. Barrett and S. Moore (eds), *New approaches to problem-based learning: revitalising your practice in higher education* (New York: Routledge, 2011), pp. 3-17
- 3 Derived from CILIP's 'Information literacy: definition', 2004. Available at: <http://www.cilip.org.uk/get-involved/advocacy/learning/information-literacy/pages/definition.aspx> accessed 25 May 2011
- 4 E. Breen and H. Fallon, 'Developing student information literacy to support project and problem-based learning', in T. Barrett and I. Mac Labhrainn (eds), *Handbook of enquiry and problem-based learning: Irish case studies and international perspectives* (Galway: Centre for Excellence in Teaching and Learning and AISHE [All Ireland Society for Higher Education] 2005), pp. 179-88
- 5 L. Dodd, 'The impact of problem-based learning on the information behaviour and literacy of veterinary medicine students at University College Dublin', *Journal of academic librarianship*, 33:2 (2007), pp. 206-16
- 6 L. Dodd, E. L. Eskola and C. Silén, 'Shining a spotlight on students' information literacy in the PBL process', in T. Barrett and S. Moore (eds), *New approaches to problem-based learning*, pp. 130-43
- 7 K. Munro, 'Modified problem-based library instruction: a simple, reusable instruction design', *College & undergraduate libraries*, 13:3 (2006), pp. 53-61
- 8 B. F. Kenney, 'Revitalizing the one-shot instruction session using problem-based learning', *Reference & user services quarterly*, 47:4 (2008), pp. 386-91
- 9 Munro, 'Modified problem-based library instruction', p. 56
- 10 Kenney, 'Revitalizing the one-shot instruction session', p. 390
- 11 Munro, 'Modified problem-based library instruction', p. 57