

6. DESIGNING A PROBLEM-BASED LEARNING (PBL) MODULE: A CASE STUDY OF A SPEECH AND LANGUAGE THERAPY MODULE AT TRINITY COLLEGE DUBLIN

Margaret Leahy and Irene Walshe
Trinity College, Dublin

Introduction

Professional education in speech and language therapy (SLT) in Ireland began in 1969 as a three-year diploma course, with a license to practice awarded by the (then) London College of Speech Therapists (the U.K. professional body, which is now entitled the Royal College of Speech & Language Therapists (RCSLT)). This course evolved over the following 20 years into a four-year honours degree course awarded by Trinity College Dublin (TCD), which is recognised professionally for practice in the UK and beyond.

Since 2003 in the Republic of Ireland, there are four centres of education for SLT, each following the academic and clinical education standards described by the International Association of Logopedics and Phoniatrists (IALP, 1995). All Irish courses are accredited regularly by the professional body, the Irish Association of Speech & Language Therapists (IASLT, acting for the Department of Health & Children) to ensure that they reflect the current developing knowledge base of speech and language pathology, as well as meeting employers' demand for graduates who can adapt to changing service provision contexts.

Each diagnostic category of communication disability is considered during the course in some detail, against a scientific background that encompasses a wide range of academic subjects including, for example, anatomy and physiology, audiology, neurology, psychology, cognitive neuropsychology, linguistics, phonetics, counselling and research methods. Courses are usually intensively taught, and students attend clinical practice during term-time and vacation time throughout their course of study. The stated objective of the School of Clinical Speech & Language Studies at TCD is to graduate therapists who are scientific practitioners, with expertise that generates confidence in working with people of all ages with all kinds of communication disability. Therapists should also be flexible and adaptable in a team setting, with the ability to lead team evaluations of communication and swallowing problems, and of therapy processes and content. In contrast to other therapy disciplines, speech and language therapists have responsibility for evaluation and diagnosis, as well as planning and implementing therapy programmes with a diverse range of client groups. To achieve stated objectives, an integrated approach to learning about communication disorders and clinical practice has been adopted in TCD since 2000 to ensure that students' theoretical knowledge has a firm basis in scientific understanding and its application to problem solving.

Implementing curriculum change

Major advances in research and practice in communication and swallowing disabilities in the final two decades of the 20th century led to the realisation that it was an impossible and unrealistic task for undergraduate students to develop clinical expertise at a sufficiently high

level in each area of therapy for communication disabilities. Excessive pressure on students to perform at high standards in clinical practice as well as in academic areas was a frequent concern within education of SLT, as was the extreme pressure on lecturers and practitioners to teach necessary knowledge and apply theory to practice in clinical contexts. Decisions were taken to focus attention on a *core skills mix* necessary for clinical expertise to be applied in therapy, and to facilitate the development of generalist knowledge (e.g., diagnostic and treatment criteria), so that student therapists would develop critical and effective learning strategies that would be developed in practice with time and experience. There was awareness too that students needed to access and develop Information Technology to aid learning and practice, and to refine and construe their practice as part of research development.

Consultation with colleagues in the Dental School at TCD, where a Problem-based Learning (PBL) approach to education had been implemented, and with colleagues in other SLT courses in the UK where curriculum change was underway provided the impetus to undertake major restructuring of the School's traditional education approach. Lectures, tutorials and clinical supervision had been the main method of teaching, and lecturers in the Dental School had become proficient at using these to advantage. However, the awareness that students engaged in limited reading and research into topics other than that undertaken for preparation for examinations, and that they were not expected to be directly involved in choosing how, what, when or where to learn, together with the factors outlined above, gave staff at the School sufficient rationale and motivation for change to a 'hybrid' Problem-based Learning curriculum.

Problem-based Learning and case-based problem solving

PBL is discussed in chapter 2 of this handbook. Its principles will be briefly summarised here. The method of education in PBL is described as student-centred or learner-centred (Barrows, 1996)) with the teacher/lecturer assuming a role of facilitator, guiding and monitoring the learning process. The student takes on the responsibility of actively solving problems that have been designed by teachers/lecturers to meet specific learning objectives. In the problem-solving process, the student is self-directed using previous personal knowledge to begin the process, working in a small group setting and becoming increasingly independent of the teacher over time, engaging in a model of learning that will continue in life and career. Some resources (e.g., core reading lists, fixed resources such as academic staff acting as resource people) are specified for the student to access, but the learning process is personalised, with individual learning styles shaping how the student pursues the learning goals.

PBL presents the student with real-world clinical problems associated with complex client issues as a stimulus for developing the critical thinking skills and problem-solving abilities necessary for learning and for application in clinical contexts.

Curriculum change

Curriculum change was assisted by the direction and support, for five months in 2000, of an experienced professor who had implemented PBL courses in SLT in the University of Queensland in Australia, and Newcastle-on-Tyne, UK. Staff training was facilitated by the in-house Staff Development Office, who organised a series of intensive staff training days. Terry Barrett an education development consultant, specialising in PBL, provided staff development courses in PBL. Follow-up study days were used to design modules and develop team skills in PBL. The first year of students to be involved with PBL from year one, began studies in 2001 and graduated in 2005. Other years of students were introduced to PBL, with practice assignments given to provide experience of PBL processes and procedures. The School decided to use a hybrid Problem-based Learning approach, incorporating a case-based problem-solving

approach supplemented with lectures, tutorials and clinical supervision. Whether a hybrid course as opposed to a pure form of PBL can be described as implementing PBL principles is debatable (Margetson, 1999). The School's decisions were supported by the knowledge that other SLT courses have been adapted to hybrid PBL courses (Whitworth, Franklin, Dodd, 2004), and clear recognition that a balance had to be achieved between the advantages of having students involved in self-directed learning, and managing to resolve issues regarding limited financial and staff resources.

To exemplify the implementation of the PBL approach to the curriculum, one module delivered in the first year of the course is presented below.

DESIGNING THE MODULE: OVERVIEW

The module outlined below is entitled *Speech & Language Pathology Foundation (SLPF) Course* and is delivered across the three terms of the first year of the undergraduate course in Clinical Speech & Language Studies. As the course name suggests, the module is designed to introduce the students to the discipline of SLT and to the role of the speech and language therapist. As the module progresses it takes account of key related aspects of speech and language therapy, including an introduction to clinical skills and the context and content of the clinical transaction. The learning outcomes for each part of the module are listed in Table 1.

Table 1: Learning outcomes for module

Timing	Parts	Learning Outcomes
Term 1	SLPF: Introduction	Students will develop an understanding of: <ul style="list-style-type: none"> ❑ the clinical speech and language studies course ❑ the nature of the SLT profession and related services ❑ the concepts, terminology and issues related to normalcy and difference ❑ their own values and attitudes to disability
Term 2	SLPF: Clinical Skills	Students will have: <ul style="list-style-type: none"> ❑ knowledge and awareness of differing interpersonal styles and how these may impact on clinical relationships. ❑ begun to address the principles of change in the clinical context
Term 3	SLPF: The Clinical Transaction	Students will <ul style="list-style-type: none"> ❑ understand the context and content of the clinical transaction

The module is delivered through a combination of PBL tutorials, lectures, self-directed learning, clinic-related experiences and video observation and analysis. Assessment is mainly through group or individual presentations of problem resolutions. Additionally a section of a terminal examination paper is dedicated to the module.

Establishing learning outcomes and problem design

The learning outcomes are directly related to the needs of first year students embarking on a course that leads to a professional qualification in SLT. Knowledge of the course and a career in SLT is variable among first year undergraduates, with some students having a reasonable knowledge base while others have very little understanding of the course or career they have chosen. This is not particularly unusual, as the general public has a limited understanding or awareness of the breadth of responsibility of the profession (Parsons, Bowman & Iacono,

(1983), as have senior cycle students (Farrell, 1994), and students of other health professions courses (Sullivan and Cleave, 2003). A number of problems are set across the three academic terms to address the specifics of the course and career. The overall objectives are to draw out and build upon students' prior knowledge. For problem resolutions, students are encouraged to draw upon a wide variety of presentation formats including role-plays, video productions, and group oral presentations. Examples of three problems presented to students are outlined in Table 2 below.

Table 2: Examples of problems

Problem 1: "Indecisive Isabelle"
Problem Presentation: Case Vignette
<i>Isabelle is enjoying her second week of the Clinical Speech & Language Studies Course when she is offered a place on the Occupational Therapy Course which was her first choice originally. Isabelle was well-informed about a career in Occupational Therapy. Isabelle knows very little about speech and language therapy as a career. Isabelle now faces a dilemma. Consequently she has become increasingly indecisive knowing she has to make some hard choices sooner rather than later.</i>
<i>Deal with Isabelle's dilemma.</i>
Product: Group presentation on problem resolution
Problem 2: "Timmy Trouble"
Problem presentation: Dialogue between Teacher and a Parent
<i>Teacher: Timmy did much better today. He really followed the instructions in class this morning and he was easier to understand. His sums were great.</i>
<i>Parent: His sums were never a problem.</i>
<i>Teacher: However, he's still not working well with me and he seems to be a loner at playtime.</i>
<i>Parent: Yeah.</i>
<i>Teacher: It's hard to give him the time he needs. We really should do something about this. I know a really good therapist.</i>
<i>Parent: Yeah but I have to dash now and collect the other three.</i>
Where does the teacher go from here?
Product: Group presentation and individual report submission

Problem 3: “Please see and advise”
Problem presentation: A referral note
Central Surgery
Main Street

Joe requires speech & language therapy

Please see and advise

Signed: Dr. B. Better MRCPI

Product: Group presentation of problem resolution

Matching learning outcomes to problems is best illustrated by means of a curriculum matrix. The curriculum matrix for the above problems is outlined below:

Table 3: Curriculum matrix

Learning Objectives	Problems		
	<i>‘Indecisive Isabelle ‘</i>	<i>‘Timmy Trouble’</i>	<i>‘Please see and advise’</i>
Term 1: Students will develop an understanding of:			
<input type="checkbox"/> the clinical speech and language studies course	√		
<input type="checkbox"/> the nature of the SLT profession and related services	√	√	√
<input type="checkbox"/> the concepts, terminology and issues related to normalcy and difference		√	√
<input type="checkbox"/> their own values and attitudes to disability		√	√
Term 2: Students will have			
<input type="checkbox"/> knowledge and awareness of differing interpersonal style and how these may impact on clinical relationships	√	√	
<input type="checkbox"/> begun to address the principles of change in the clinical context	√	√	√
Term 3 : Students will			
<input type="checkbox"/> understand context and content of clinical transaction		√	√

Designing assessment procedures as part of the curriculum design

An important issue in implementing new teaching and learning strategies is to design appropriate assessment procedures that will assess student learning in a way that reflects the learning philosophy. Assessment procedures introduced for PBL coursework have to include assessment of the generic skills and attitudes developed through PBL in terms of: teamwork; chairing a group; listening; recording; cooperation, respect of colleagues’ views; critical evaluation of literature; use of resources; and presentation skills (Wood, 2003: 236). Methods introduced included assessment of small student group and individual presentations or reports of problem solutions and individual seminar presentation on particular topics chosen by students.

Traditional methods of continuous assessment (e.g., through essay writing), and of written examinations were retained, but reduced in number and scale to balance with the introduced assessments.

An example of assessment criteria for a typical problem resolution within the PBL curriculum is outlined below in Table 4. The assessment criteria are given to the students prior to their problem resolution presentation so that they are aware of the criteria against which their performance is measured.

Table 4: Assessment criteria: Group presentation

	Knowledge	Result
High Pass (55%±)	Demonstrates originality of approach and evidence of analysis, synthesis and evaluation	
Pass (40-55%)	Adequate knowledge and application of learning to the problem	
Fail (39% or below)	Accessed, interpreted and summarised information but did not apply knowledge and failed to arrive at problem resolution	
Tutor Comment		
	Practice Relevance	Result
High Pass (55%±)	High level of critical thinking and reflection on professional practice	
Pass (40-55%)	Knowledge and learning only partially related to relevant practice	
Fail (39% or below)	Knowledge not applied to practice	
Tutor Comment		
	Process (Self-Rating)	
High Pass (55%±)	Good communication skills in tutorial group; good contribution to identification and development of learning issues and use of a wide and varied range of learning resources	
Pass (40-55%)	As above but rated as 'adequate'	
Fail (39% or below)	As above but rated as 'poor'	
Tutor Comment		

Evaluating the effectiveness of PBL

The effectiveness of PBL as an education strategy in healthcare, particularly in medicine where it has enjoyed some popularity, is highly controversial. As might be expected, sources that support traditional education tend to be negative (Williams and Lau, 2004), but generally data presented to support their opinions is either scant or non-existent. Others have experienced its value and are optimistic about its outcomes (Morrison, 2004).

In SLT education, studies on effects of PBL are scarce. In TCD, first and second year SLT students using PBL to learn psychology were consulted about their perceptions of its advantages and disadvantages. Murphy (2004) reported that these students were aware of advantages that included involvement with teamwork, and ‘deep learning’ that resulted from PBL. On the negative side however, they reported ‘increased workload’ with PBL and were concerned about the ‘lack of meaningful interaction between students’ that occasionally occurs in some groups, and about the issue of adequately covering course content.

In 2004, the School conducted a preliminary study to evaluate SLT students’ perceptions of the relevance of PBL to clinical practicum (Leahy et al, *in press*). Students from two settings: TCD (Centre 1- C1) and a UK course (Centre 2- C2), were surveyed. Responses from the 34 students who participated in the survey were analysed both quantitatively and qualitatively. The majority of students (71%) indicated that PBL provided them with useful knowledge for clinical work. Fifty eight percent (58%) of students indicated *satisfactory preparation* for clinics from the PBL course.

Students’ comments regarding the *most useful* aspects of PBL in client management included the following: “Thinking of different solutions, evaluating each and choosing the best”; “I will automatically use this approach within treatment”. Comments regarding *least useful* aspects of PBL in client management included: “I have learnt much from the PBL process as I have from my clinical placement but would not link the two with each other” and “I find it hard to link PBL with real clients”.

Requesting students to reflect on whether the PBL process enhanced clinical experience prompted a variety of positive and negative responses. Positive comments highlighted the fact that some students could see the potential value of the close relationship between PBL and clinical work. Examples of positive comments included: “I do think PBL is the way forward and has the potential to be very successful, but it needs to be related to clinics a lot more” and “PBL allows the course to be practical at a theoretical level”. Other students could see the direct link between the PBL process and clinical practice e.g., a student commented: “It provided me with the techniques which I could use to reflect upon my performance in clinic”. In contrast, not all students appreciated the link between the PBL process and clinical work. Others compared the experience of the PBL process to being “thrown in at the deep end where you have to teach yourself”. Still others in the more junior years failed to see how the PBL process enhanced their clinical experience at all.

There was a significant difference in the level of positive attitude (as reflected in the proportion of positive responses to issues addressed) to PBL between Centres 1 (C1) and Centre 2 (C 2), ($t=-2.107$, $df=25$, $p<.05$). A correlation of these variables indicates that students from C2, where PBL had been used for 8 years, have a more positive attitude to PBL than the students at C1 ($p<.05$), and that this positive attitude increased with greater experience of PBL. The more negative attitude reflected in C1 is probably related to the uncertainty and ‘fear of change’ that invariably accompanies and affects any curricular changes in academic courses generally.

Overall however, some ninety four percent (94%) of students reported that they considered PBL relevant to clinical preparation, with only six per cent (6%) indicating that they did not.

CONCLUSIONS

This chapter outlined the pathway to the introduction of a hybrid PBL curriculum to a course in speech and language therapy. An example of a successfully implemented module in the first year of the course was outlined. Finally, preliminary results exploring students’ perceptions of the PBL process with regard to clinical practicum were outlined.

Evaluation of student perceptions of PBL has provided initial findings to support the implementation of PBL in the education of speech and language therapists. The more positive responses regarding the relevance and usefulness of PBL to clinical work received from the more senior students indicate that with maturity and experience, students develop an engagement with the PBL process over time, and that ultimately they do see its value in preparation for clinical work, and within the clinic setting. However, student numbers involved in the survey were small and further data collection and analysis are necessary to substantiate these findings.

The education of speech and language therapists needs to adapt to take advantage of advances in information technology and the rapid increase in the knowledge base that necessitates life-long professional learning. Educators must find ways of teaching students how to access and apply current knowledge rather than provide students with 'facts' that may soon be obsolete. Future research needs to determine whether the PBL approach to education can enhance speech and language therapists' clinical practice through self-directed learning.

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