

## **A Design Model for IPE**

Reeves et al. (2007) described seven key factors in the planning and implementing of IPE in health care settings. These are high level factors that are a good starting point for any educationalists/trainers embarking on a new IPE course or reviewing and perhaps revising an established course. The authors use a widely accepted definition of IPE that has been subsequently ratified by the Centre for the Advancement of Interprofessional Education (CAIPE 2006).

The seven key factors described by Reeves et al. (2007) that need to be considered in designing and delivering any IPE learning experience are:

- 1 Promoting inter-professional interaction
- 2 Group dynamics: professional balance and stability
- 3 Relevance and status: ensuring IPE is valued
- 4 Expert facilitation
- 5 Facilitator support and training
- 6 Organisational implementation
- 7 Organisational support

Each of this will be explored in depth from an educational and a practical point of view.

### **Promoting Inter-professional Interaction**

In order to learn from and about each other, interactive learning methods are essential. A range of interactive approaches are available.

Techniques to facilitate interaction:

- Small group work
- Problem- or case-based learning
- Brainstorming
- Buzz groups
- Think, pair and share
- Incident analysis
- Quizzes
- Question and answer

#### ***Small Group Work***

Small group work and problem- or case-based learning in particular are effective teaching methods to facilitate interaction. Problem- and case-based learning are useful teaching methods within the IPE context. The next section will explore problem-based learning (PBL) as an example but a useful reference for case-based learning, equally appropriate for IPE is Williams (1992).

### *What is Problem-Based Learning?*

PBL is a learner-centred approach to learning developed in McMaster University (Barrows and Tamblyn 1976). It is best to view PBL as a range of approaches underpinned by the essential elements of:

Patient problems as the starting point;  
Learners work in small groups;  
Analysis of the problem;  
Identifying basic principles and concepts; and  
Interactive learning.

### **Advantages of PBL**

PBL in general is underpinned by a constructivist approach, which states that knowledge is constructed in the mind of the learner through perception of experiences (Schwandt 1994). Constructivism views that knowledge is not discovered but socially constructed. Dewey (1929) proposed that learners construct personal conceptual schemata (frameworks) in order to organise and retrieve information. Learning happens by activating appropriate schemata and incorporating new learning within the framework.

PBL is also learner-centred, encouraging learners have to take responsibility for their own learning, moving from passive receipt of information to active learning. The latter is a general term embedded in a number of learning methodologies. Denicolo et al. (1992) offered four distinct features of active learning:

- 1 A search for meaning and understanding;
- 2 Greater learner responsibility for learning;
- 3 Focus on knowledge and skills; and
- 4 An approach to learning that looks beyond the curriculum to lifelong learning.

Schmidt et al. (2011) suggest that PBL works as it encourages the activation of prior knowledge. This activation is facilitated by small group work that encourages opportunities for exploration and elaboration of the knowledge, thus leading to a deeper understanding. Also relevant problems enhance situational interest that enhances learning.

In designing an IPE course using PBL the following need to be considered:

- 1 Learning outcomes (dealt with earlier);
- 2 Designing the PBL 'Problems';
- 3 Facilitators/tutors;
- 4 Small groups;
- 5 Resources; and
- 6 Organisational issues.

### **Designing the PBL Problems**

A practical approach to designing PBL problems describes seven qualities required of a PBL problem (Albanese and Mitchell 1993) and it is useful to use these as a framework to describe one's approach to the design of any course.

- 1** The first is to ensure that the problem is a common one that the learners would be expected to deal with in real clinical practice. This is essentially ensuring that the problem has relevance. One approach is to ensure that each of the problem scenarios is devised by an expert panel and is based on real patients. So the problems are both relevant to the 'curriculum' but are explicitly relevant to what the learners will be expected to face in the real world, in the clinical setting.
- 2** The problems should also be serious, have serious consequences depending on the management plan devised. That is, the outcome matters. For example, one of the problem scenarios may involve the learners exploring issues related to dignified death. So choosing serious and relevant problems that all learner professions will engage in equally is essential.
- 3** The problem scenarios should have a built in element of learning and understanding of primary prevention. With the scenarios, a common theme should be that early screening and clinicians having a high index of suspicion enable early diagnosis and a better outcome.
- 4** The problem should allow interdisciplinary and interprofessional aspects to be explored and have a broad base. With each problem there may be aspects of the need for services from the primary care team, pain clinics, surgical teams, third sector and patient-support groups.
- 5** The problems will map directly to the learning outcomes as above.
- 6** The problems should present a concrete task or tasks for the learners to work and focus on. This is a key element and the problems should be designed so that specific tasks and subtasks are required.
- 7** The problems should also have a level of complexity that is appropriate for the learners' prior experience and knowledge. It is essential that if one is targeting a group of experienced clinicians to ensure that the problems will reflect the complexities of the learners' clinical interactions on the 'coal face'.

### **Facilitators**

Not all teachers or trainers are comfortable with the demands of a PBL approach. In an ideal world, all health educators would have a wide range of characteristics but the reality is that being an effective teacher/trainer is a process of continuous improvement (Ralhan et al. 2012).

There is a tendency for medical teachers as an example, to teach as they were taught (Irby 1996). The role of the facilitator is intrinsically different to that of the traditional lecturer. There is a unique set of competencies

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associated with a PBL facilitator. In addition to the having skills in small group facilitation, and an understanding of the wider programme and the specific learning outcomes there is debate in regard to their position or otherwise as the content experts.

There are two positions. In the original McMaster curriculum where PBL originated (Wood 2003) there was a conscious decision that the facilitators did not, and should not be content experts. This was to reduce the temptation of the experts 'lecturing' the learners (the traditional knowledge transmission interaction). Others argue that the best outcomes are achieved if subject experts are trained in facilitation techniques (Davis et al. 1992). Although the learner group may be made up of experienced clinicians they may still have had limited exposure to PBL. They will require further support including a study guide to help them manage their own learning in an effective manner (Laidlaw and Harden 1990).

### **Small groups for PBL**

There a number of key questions to ask when organising and managing small groups including the size, composition, assignment of roles and time management. This is of particular importance in IPE. The optimum number in a small group is considered to be seven with evidence that if the number is above ten this leads to poorer quality interaction (Hughes and Lucas 1997). Depending on the type of course or programme, in other words, the mix of potential learner groups, the logistics may mean that one cannot allocate the natural 'teams' into one PBL group so a mix across may be required.

Considering the multiprofessional nature of the entire cohort, it can be important to assign individuals to groups to ensure a balance. One can always alter this based on observations of the group dynamics. It is important to ensure engagement of all members and if some dominate or monopolise then re-assignment may help.

Each of the problem scenarios should have explicit role assignments and if the learners are relatively inexperienced with PBL one can assign specific administrative roles of recorder and action list generator (Barrows 1985). In planning PBL it is best if role assignments are planned so that all learners take part and 'play' each other's roles thus enhancing each groups' understanding of each other.

It is also useful to provide a set of ground rules for the use of technology, time management and breaks.

### **Resources**

Physical resources requirements will need to be built into the plan for delivery of any PBL course. One needs to be specific in regard to this and plan ahead. Moving from a traditional lecture-based programme there may have been a

requirement for a 50-seater lecture theatre and one lecturer for a morning session. If the cohort remains at 50 but using a PBL approach there will be a need for 7 group rooms if one adheres to 7 in each group. Compromise may be required on the course organiser's part if the ideal physical facilities are not available. Managing the learning environment 'on the hoof' is an important skill in any teaching methodology but particularly with small-group PBL.

### **Organisational issues**

Moving even just one course from a traditional lecture-based delivery model to PBL will have major resource requirements for one's organisation. The manpower may have been identified previously, using more traditional methods. This may have been assessed as, say, two tutors and a part time administrator. Moving to PBL may then require seven facilitators who are trained, generation of lesson plans, study guides for the learners, and more logistical challenges such as access to kettles, coffee and so on.

### **Summary of PBL approaches**

The principles that one should use to re-design a course in order to facilitate using a PBL approach have been described in the preceding subsections. The key elements are starting with relevant and important 'problems' that map to the learning outcomes. The education strategies include small group work with trained content expert facilitators. A PBL approach facilitates a learner-centred and interactive learning experience.

### ***Brainstorming***

In small or even larger group sessions, brainstorming is a useful tool to facilitate creative problem solving, enhance social cohesion and increase the overall creativity of the group. Osborn (1963) is frequently attributed with originating this technique. In practice a question is posed to all the members of the group. The participants discuss the question/issue posed and in a free flowing way offering ideas. Brainstorming works best if some principles are adhered to;

- Go for quantity ... the more ideas the more chance of finding the best solution
- No criticism ... no judgements should be made on any ideas offered
- Encourage wild ideas ... these may stimulate further new ideas
- Combine and improve ideas

### ***Buzz Groups***

A buzz group is a small group, usually of three to six participants who are given an assignment to complete in a short time period. Each buzz group records their output and then reports to the larger group when the task is finished. They are a useful tool to use to help ownership of learning to move

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from the tutor/trainer to the learners themselves. According to Thelen (1967), this technique is also useful for:

Getting the learners started on a new problem;

Overcome a feeling of apathy or inertia or to refocus the learners; and

To test out new ideas

### *Think, Pair and Share*

With this teaching strategy the tutor/trainers acts as a facilitator and poses a question to the group. Each learner is given some time to think through the question and is then paired off with a peer and they share their thinking. This allows social interaction, sharing of ideas in a safe space and both communication and listening skills.

The next step could be each pair sharing key agreed points with the wider group or then pairs joining and repeating the process. This is an extremely simple technique that be used at any point in a session and is particularly helpful for the tutor/trainer to have a better understanding of the learners' thinking and views.

### *Incident Analysis*

This is a widely used technique as a way of allowing learners to reflect and make sense of events. It is a widely used lifelong learning tool (Henderson et al. 2002). As a result of reflection, gaps in knowledge or understanding can be identified. One method is to ask each learner to think about an incident beforehand and be prepared to share it with the group. Each learner then in turn describes what happened and as a facilitator, one asks them to identify their initial thoughts and feelings. The stage after that is to facilitate the learner to reflect and evaluate the event ... the 'why do you think it happened' question, and then the conclusion ... 'what did you learn or importantly what gaps do you perceive?' ... hence generating areas for development.

### **Group Dynamics: Professional Balance and Stability**

There are a number of steps that one needs to take in determining the composition of groups when using an IPE type approach. The starting point is the aims and specific learning outcomes as discussed earlier. It is important to have a clear understanding of what IPE type learning has been undertaken/experienced by the groups you have in mind. There is a real need to consider very carefully the professional and discipline balance within the learners' cohort and then in specific small groups if that is your teaching methodology. As a result of the traditional hierarchical relationships that may have existed between the professions over many years (Hammick et al. 2007) it is essential that no single profession is or is seen to be dominant in any group work,

scenarios and pre- or debriefing. This is not just about the numbers of each profession but also addressing issues such as ensuring the scheduling of learning is equitable.

These issues are echoed from published studies looking at the barriers and facilitators of interprofessional team work in health care settings. Xyrichis and Lowton (2008) identified the following factors as important:

Team premises;  
Team size and Team composition;  
Organisation supporting team meetings;  
Clear goals and objectives; and  
Audit of activity.

In order to design an IPE course it is essential to understand the intended audience, consultants, staff and associate specialist grade, higher trainees, nurse specialists, physiotherapists and non-clinical staff and refocus your strategy for advertising. One option is to target natural teams in specific health environments and allocate them to small groups based on their department. The disadvantage of this is that the established dynamics in these 'natural' teams may act as a barrier to genuine interaction.

### **Relevance and Status: Ensuring IPE is Valued**

If learning is highly valued then there is more likelihood of learners perceiving or feeling that it is of significance to them personally. The concept of significant learning is characterised by:

*some kind of lasting change that is important in terms of the learner's life.*  
(Fink 2003, p. 295)

Participants in IPE have reported gaining most from the experience when there is genuine engagement with other learners from other professions working jointly on a relevant problem (Gilligan et al. 2014). Hence, participants' involvement will be enhanced if IPE is perceived as relevant. When using a PBL approach, it is key that the problem scenarios are pitched at the correct level of complexity mapped to real and 'hot' issues in the clinical environment.

It is important to ensure that the facilitators are trained in IPE as described but more importantly that they are also seen as experts with authority. Also it is always useful to ensure that continuing professional development points will be gained.

Another tactic will be to market the course and re-brand emphasising the IPE nature and enlisting the support of Royal Colleges and other professional bodies involved.

It is important to recognise the importance of informal IPE. This is the informal social interaction built into any learning experience, coffee breaks

and so on. These opportunities to interact can be extremely positive and hence have a real positive impact on the formal IPE. Studies have shown that these social factors played an important role within the wider experience of learners (Reeves 2000).

### **Expert Facilitation**

The skill set, attitude, competencies and confidence required for IPE facilitators is different to those in other settings (Holland 2002). The demands of IPE groups can be high and experience in dealing with possible dynamics that manifest are key.

The facilitators must be aware of the interprofessional conflicts both more generally and between individuals. Ideally, these conflicts should be used to develop and maintain a team ethos (Headrick et al. 1998).

It is clear that the skills and competencies are different and not all experts, in this case experts in assessment in the work place, per se will be able to facilitate effectively. If using a PBL or case-based approach there is an argument that the best outcomes are achieved if subject experts are trained in facilitation techniques (Davis et al. 1992). This is a key issue and flows into one of Reeves and colleagues' other factors of facilitator support. These development programmes are crucial to prepare tutors particularly those inexperienced in IPL settings.

### **Facilitator Support and Training**

Irrespective of the teaching methodology, it is essential that tutors and facilitators are supported and provided with on-going professional development opportunities. Given the specific and significantly different demands of facilitating in small groups, using a PBL or case-based approach within an IPE model it is imperative that facilitators are selected and supported (Freeth et al. 2005).

Facilitation differs from leading or directing teaching. The University of Toronto, Centre for Education (2018) defines facilitation as:

*the process of helping groups or individuals to learn, find solutions or reach consensus without imposing or dictating an outcome. Facilitation works to empower individuals or groups to learn for themselves or find their own answers.*

It is well recognised (Anderson et al. 2013) that faculty development is essential for ensuring effective high quality IPE and that there is a particular mind set: that is for faculty to think outside of their own professional silo and the inherent boundaries these set. The aim is for the IPE facilitator to act as a co-creator of IP knowledge.



Nicol and Forman (2014) suggested that IPE was most effective if facilitators tailored the experience to meet the needs of specific clinical placement and the specific learning needs of learners. So, according to Chipchase et al. 2012, the attributes required of an IPE facilitator include:

Inspiration;

Reassurance;

An understanding of team formation;

An understanding of group dynamics; and

The ability to resolve conflict.

Therefore on-going support and development for IPE facilitators is essential and will require planning and resources.

### **Organisational Implementation**

All educational organisations, at whatever level the learning is pitched, need to plan IPE in a co-ordinated manner. One key question for any organisation is the timing of the IPE with a course or programme. There is evidence that some students at undergraduate level have preconceived professional stereotypes that can act as barriers to IPE. The argument there is that IPE should be embedded in programmes as early as possible. On the other hand others have argued that IPE is best positioned post qualification so that participants have a clear idea of their uni-professional roles and identity and hence are best placed to understand how their role fits in the wider health and social care system and hence how other professions fit.

### **Organisational Support**

Planning and implementing effective IPE is clearly complex and will, therefore, require support from the home organisation, university, health boards, trusts or others.

There can arise a number of organisational barriers to the delivery of IPE. Undergraduate (UG) can be more problematic as a result of more institutional barriers such as timetabling a number of UG programmes on multiple sites. In general the barriers within organisations can be:

Imbalance in learner numbers ... too many of one profession;

Learning space pressure ... small group PBL needs rooms; and

Access to IT and study space may be issues.

Extra institutional barriers (Pirrie et al. 1998) can include out-of-sync revalidation cycles, for example nursing in the UK is three years and for doctors the cycle is every five years. Separate and competing funding streams can also lead to barriers in supporting IPE activity across professions and organisations. Disparate professional bodies with perceptions of conflicting agendas can also lead to lack of meaningful engagement.