Interprofessional education: International perspectives on the delivery of research methods modules

Abstract

The delivery of research methods modules (RMMs) is a fundamental component of most healthcare curricula, with the associated skills recognised as key to optimising patient care. RMMs lend themselves well to an Interprofessional Education (IPE) forum for teaching, given shared priority across all health professional student groups to prepare graduates for evidence-based practice. There is however a paucity of studies investigating the efficacy of such modules delivered using an IPE approach.

This qualitative study involved semi-structured interviews with six international experts in IPE from five institutions in Australia, Canada, the United Kingdom, and the United States to garner expert perspectives regarding the viability and usefulness of this approach. Transcripts of the 45-60 minute interviews were thematically analysed.

There were mixed views on the appropriateness of teaching RMMs using an IPE approach. The participants agreed that a foundational introduction to IPE was necessary before an additional topic such as RMMs, which is typically challenging for students, was scaffolded on top. It was also agreed that the approach used for teaching RMMs must be meaningful for healthcare students, and carefully aligned to an IPE competency framework.

RMMs may be appropriate for delivery via an IPE forum provided that certain factors as discussed are considered. However, further research is required to guide curriculum development in this aspect of health professional education.

Key words: Interprofessional education; research methods modules

Introduction

Evidence-based practice (EBP)[i] in healthcare is a critical mechanism to promote effective and efficient patient care (Straus, Tetroe, & Graham, 2011). The importance of research methods education in health sciences curricula therefore has long been recognised (Peachey & Baller, 2015) with research methods modules (RMMs) comprising a substantial component of pre-qualification healthcare programmes. Such modules introduce students to the basics of research design and analysis, provide insight into the complexities of ethical research, critical appraisal and application of relevant literature to practice. Frequently students are also required to complete a healthcare-related research project as part of their programme of study. Demonstrating a nuanced understanding of research design, interpretation, and implementation is vital for health professional graduates, in an increasingly outcome and evidence-driven work environment (Gostin, Levit, & Nass, 2009).

Despite these expectations of students, evidence on best practice in the teaching and assessment of RMMs is lacking (Earley, 2014; Wagner, Garner, & Kawulich, 2011). Research is a complex construct which encompasses an expansive array of concepts, definitions, approaches and theories (Braguglia & Jackson, 2012; Strangman & Knowles, 2012) with some authors arguing that the academic community lacks a clear consensus on what research methods curricula should entail (Lehti & Lehtinen, 2005). Others contend that research methods education is not a distinct field of teaching, and as such, is less amenable to pedagogical analysis than other more established content areas (Wagner et al., 2011). An extensive, high quality systematic literature review of 89 studies (comprised of quantitative, qualitative, and mixed methods approaches) of research methods education (Earley, 2014) identified a lack of clarity on how and what students were learning, pointing to a paucity of detail regarding assessment strategies used in these modules. The review found that students typically regarded RMMs negatively; failing to see their relevance, while displaying anxiety, disinterest and misconceptions about the modules.

Research methods education by its nature includes content common to many healthcare professions. For instance, there is much shared ground in critical appraisal, ethics, along with the theory and practice of quantitative and qualitative research methods. This is particularly relevant in healthcare where members of different professions frequently collaborate in patient care. Healthcare teams also rely on research produced by diverse professional groups. Equally, interdisciplinary research requires an open and flexible research design, and a willingness to cross boundaries into the practice context of collaborators (Clark et al., 2017). Thus, RMMs appear to be an ideal space for interprofessional education (IPE).

IPE is commonly defined as “occasions when two or more professions learn with, from and about each other to improve collaboration and the quality of care” (CAIPE, 2002). This approach offers a forum for students to develop skills for collaborative practice before entering the workforce. IPE in research methods education may simultaneously nurture desirable competencies including professionalism, clinical practice, health promotion, EBP, collaboration and life-long learning (O’Keefe, Henderson, & Chick, 2017). However, studies of RMMs delivered in an IPE context are rare. In a high quality international systematic review

[i] Abbreviations: EBP: Evidence-based Practice, RMMs: Research methods modules

of IPE in pre-qualification allied healthcare students, all the learning opportunities in the 17 studies reviewed related to the clinical care of patients, with none of the studies involving IPE activities in research methods (Olson & Bialocerkowski, 2014). The review included studies with quantitative or qualitative methodologies to report on the outcomes associated with IPE in allied health, with no exclusion criteria related to non-clinical IPE experiences. Indeed, a recent international consensus statement on assessment in IPE focused largely on clinical, patient management scenarios (Rogers et al., 2017). The only study exploring IPE research methods activities identified was a case report detailing this approach with students from nursing, nutrition science, and exercise and sports science (Schug, Finch-Guthrie, & Benz, 2017). The findings highlighted challenges of engendering a sustainable interest in research and EBP in an IPE context (Schug et al., 2017).

These challenges may be due to numerous barriers to the implementation of IPE in curricula more generally, including issues pertaining to leadership buy-in, curriculum design, availability of resources, stereotypes and attitudes, heterogeneity of students, understanding of the IPE concept, teaching approaches, enthusiasm for IPE, professional jargons, and accreditation requirements (Sunguya, Hinthong, Jimba, & Yasuoka, 2014). Moreover, the lack of (Craddock, O'Halloran, Borthwick, & McPherson, 2006) and need for (Reeves & Hean, 2013) robust pedagogical theory underpinning IPE teaching and assessment are acknowledged. No studies were identified investigating optimal pedagogical approaches for delivery of IPE-based RMMs. Given the evidence-based practice culture we, as educators, are preparing graduates for, the barriers to effective delivery of IPE coupled with little research supporting best practice for teaching and assessment of research methods is counter-intuitive. Therefore, the aim of this exploratory study was to establish expert opinion on key principles underpinning successful implementation of IPE in RMMs.

Methodology

A thematic analysis approach was adopted with the objective of developing pragmatic, expert-based guidance on best-practice in this area (Braun & Clarke, 2006). Semi-structured interviews were the most appropriate method of data collection, as this forum provides a measure of flexibility (Kallio, Pietilä, Johnson, & Kangasniemi, 2016) while enabling consistency across interviews. The interview structure was developed based on best-practice recommendations (Galletta, 2013) by considering existing knowledge in the field, piloting the questionnaire within the research team and refining accordingly. Participants were asked to describe any relevant RMM IPE module they supported, including cohort size and composition, teaching and assessment methods, barriers and facilitators, and evaluation approach. Other participants who had no direct IPE RMM experience were asked to apply their expert knowledge to the perceived rationale, barriers and facilitators to the delivery of IPE RMMs.

Recruitment was broad-based. Leading international contributors to the development of IPE in healthcare RMMs were contacted via existing networks of IPE colleagues. This was followed by exploratory web searches for key authors in this field who were subsequently invited to

participate. The Centre for the Advancement of Interprofessional Education (CAIPE)[ii] also circulated details of the study to their members. Finally, web searches were conducted to identify institutions which offered IPE RMMs in healthcare, and module leaders were invited to participate. Six IPE experts from five different universities in the United States, Canada, Australia and the United Kingdom took part in this study. All participants are eminent IPE academics from a variety of clinical backgrounds including nursing, occupational therapy, podiatry, medicine and education (Appendix A). Participants also represent a wealth of IPE experience both at curricular and national policy level. Interviews were conducted over the telephone or on Skype by the principal investigator. All conversations were audio recorded for subsequent transcription.

Thematic analysis was employed to explore the data using the Braun and Clarke six-step model (Braun & Clarke, 2006). Familiarisation with the data was supported by verbatim transcription of the interviews, with first author (RC) completing multiple re-reading of scripts while also employing reflexive note-taking to record and audit emerging impressions (Vaismoradi, Turunen, & Bondas, 2013). The written transcripts were also explored in a similar manner by one co-author (PB) with these two authors independently performing line by line coding of the transcripts. The data analysis was conducted manually since the quantity of text was amenable to manual inspection. An inductive approach to thematic refinement and definition was adopted through a process of discussion of codebooks involving both authors. Disagreements were to be referred to a third party within the faculty for adjudication, however the need for this did not arise, as differences in interpretation of thematic areas were explored and negotiated via open discussion as the analysis progressed

Finding and discussion

There was no clear agreement as to whether an IPE context was suitable for the delivery of RMMs. Some participants had found the approach to be appropriate and beneficial, whereas another participant's institution had previously abandoned IPE in favour of a less complex shared learning approach. Of the three participants who did not have firsthand experience of IPE RMMs, one did not endorse this approach and the remaining two participants felt it had merit. However, four fundamental themes for the potential successful delivery of RMMs using IPE did emerge as follows.

Theme 1: Foundational knowledge is key

A theme that emerged across all participants was the requirement for a basic or foundational module introducing students to IPE, prior to scaffolding any additional learning on top. The requirement for students to have appropriate insight into their own professional identity and to gain an appreciation for the identities of students from other disciplines was repeatedly described as fundamentally important. The concept of "otherness" was used in relation to gaining insight into the role of professions outside of one's own. Also, basic IPE competencies, including communication and team-working, are addressed at this level.

[ii] The Centre for the Advancement of Interprofessional Education (CAIPE) is a UK-based charity, to promote health and wellbeing and to improve the health and social care of the public by advancing interprofessional education (IPE).

P4: "I think any kind of activity that helps them appreciate the other and I think they have to – I'm wondering if they need to be introduced to the concept of how we form identity, and psychologically, there's the process of "othering" – I'm this group and your that's group. That can be really positive on one end, but really negative on the other end in terms of prejudice and assumptions about the other without bothering to find out"

P1: "We call the first level Team Awareness, the second level competence Team Experience, and the third level is Team Ready. Team Ready competency really needs to be out in the clinical practice… and you can't – and I'm convinced of this – just start out with the clinical part and the Team Ready. Students will not do well, because they won't have a foundation"

IPE and research are both complex areas, and introducing them contemporaneously would appear to be unwise. Based on these interviews, students should be introduced initially to IPE in a graduated fashion, before exposing them to the many-headed hydra that is research methods. The participants in this study have identified the need for students to develop a clear understanding of the remit and locus of their own profession, in addition to that of their peers from other disciplines. It is well established that many healthcare students complete their education and commence their professional lives without ever attaining this understanding (Ateah et al., 2011). This in turn may lead to stereotyping of various professional roles, which has been proven to impair multidisciplinary working relationships (Carpenter, 1995) thereby adversely affecting patient care. The importance of a foundational or introductory IPE module to address the issues of identity was proposed broadly by the participants in this study.

The need for progressive exposure of students to the complexities of IPE is well established in the literature (Buring et al., 2009; Curran & Sharpe, 2007). One model has labelled these tiered stages as the pre-clinical, clinical novice, probationer and practitioner stages, facilitating the student from initial exposure to clinical learning to qualified professional (Curran & Sharpe, 2007). This perspective usually applies to preparing students to work clinically together, in a patient-centred activity However, it is clear to see that the same must apply if students are expected to work together in an area as complex as research methods.

Theme 2. Research methods modules are difficult

There was a broad acknowledgement that RMMs are often quite problematic for, and unpopular with, students. The subject matter is frequently viewed as difficult, monotonous and lacking meaning for the students, irrespective of whether these modules are delivered in an IPE, shared learning or unidisciplinary context. The coupling of IPE – itself a complex undertaking – with research methods was recognised as extremely challenging.

P3: "Research methods is quite heavy – and then trying to teach the competencies of IPE, the volume of it altogether, for us it just doesn't work and I'm not saying that it doesn't work for other people but for us, we took that step to dissociate… and I think for the students, that kind of association between IPE and research methods really wasn't doing much for us in terms of promoting the benefits of IPE".

P5: "It's very easy to do shared learning – it's much more challenging to take some of these difficult areas – research is one –that sit in that camp. Much more challenging to use those principles (of IPE) and apply then to those areas."

As stated, students often find RMMs to be monotonous and difficult, which can lead to a lack of self-efficacy and high levels of anxiety (Papanastasiou & Zembylas, 2008). There is a paucity of literature regarding the student experience of RMMs in the health sciences, but this issue has been robustly investigated in the field of the social sciences (Murtonen & Lehtinen, 2003). Furthermore, many facets of the debate regarding the challenges and benefits of teaching RMMs in the social sciences, have resonance in healthcare education. Both academic areas have recognised the tension between providing students with the requisite knowledge to become informed consumers of research, and arming them with the tools to become research practitioners (Earley, 2014; Nind, Kilburn, & Luff, 2015).

Undergraduate students of education have experienced anxiety related to RMMS due to the perceived difficulty of the subject matter, lack of applicability to their profession, and apprehension about using these research concepts in their professional lives post-graduation (Papanastasiou & Zembylas, 2008). Education and sociology students have also identified that difficulties with quantitative research methods in particular, stem from a host of factors including; superficial teaching strategies, problems linking theory with practice, the difficulty of concepts and content, and negative attitudes toward this subject (Murtonen & Lehtinen, 2003). These factors have been echoed by the participants in this study, with regard to students in the health sciences. The esoteric nature of RMMs is identified as a constant challenge, and as mentioned, the premature or ill-constructed marriage of IPE and RMMs may afflict IPE with the same negative connotations which are often associated with RMMs.

Theme 3. Learning must be meaningful

A major theme identified by all participants was the need to craft and provide learning opportunities that had relevance for the students. The challenge of attaching relevance or meaning to abstract research concepts was identified as particularly challenging. This theme emerged not only in relation to the teaching of RMMs, but any IPE based-activity, including clinically-based exercises. However, in relation to teaching RMMs, the challenge to position the learning in real-life, relatable scenarios was recognised as more daunting than the creation of clinically-based scenarios.

P4: "Students are always looking for something that's going to be meaningful in the career that they're buying into, and a lot of research is team based and the future of research is collaborative, so I guess that kind of helping them to understand that research isn't something of an isolated research in a white coat, lonely at might, putting droplets in test tubes"

P6 "For research, it's the same thing. It seems very esoteric to them, and my suspicions are, that's the blowback from students. We as academics want them to learn the

methods, but at the end of the day, it's not meaningful to them unless they're applying it."

As already mentioned, there are limited guidelines on effective pedagogy in the area of teaching RMMs, but it is widely accepted that meaningful learning is generally more readily engaged in by students (Kuh, 2016). There is a further distinction that may be drawn between topics that are professionally meaningful and personally meaningful, with the latter having the potential to engage the student more fully (Priniski, Hecht, & Harackiewicz, 2018). The best outcomes are likely to be achieved when a topic is both professionally and personally meaningful for a student. In this study, participants PI & P2 outlined how the topic of concussion in American football was chosen as the framework upon which to scaffold learning about the various facets of research methods. This approach was reported to be successful primarily because of the meaning attached to it by the students. In this cohort of exercise science and nursing students, they were not only likely to encounter this patient group professionally, but for many of them, had also personal experience of concussion. Common clinical conditions related to lifestyle choices and/or ageing are likely to have similar resonance for students as it relates to themselves or their family and/or friends. This also strengthens the rationale for IPE RMMs to be delivered later in the curricula when students have the requisite clinical knowledge to apply to particular topics.

In a related point, there was an interesting contradictory view from participants regarding the appropriateness of undergraduate or postgraduate students for these types of modules. It was the view of participants P1 and P2 that postgraduate students can be more reluctant to learning in an IPE environment if they have not been previously been exposed to formalised IPE as undergraduates. On the other hand, participant P6 proposed that postgraduate students might embrace this type of module more readily, as those students see collaborative research in action and therefore it is more meaningful for them.

Theme 4. The importance of being competency-based

These participants were drawn deliberately from across the globe to garner international perspectives on this topic. The participants are therefore informed by individual, but similar competency framework documents. For instance, areas of overlap such as team functioning, conflict resolution, and interprofessional communication are featured competencies across all the frameworks. In considering both the teaching and assessment of IPE and research methods, a recurring theme was the fundamental importance of a competency framework underpinning all activities. There was acknowledgement of the difficulty of designing modular learning outcomes that effectively aligned teaching and assessment of both the IPE and research components of the modules.

P2: "In 2014 we reviewed our IPE progression and at that point… we decided very much that our Level 2 research methods module, and the Level 3 module which was called "Investigating Effective Practice" … were shared learning modules, and didn't fit the true definition of IPE. So we revised our IPE framework at that point taking on board the principles of CAIPE"

P5: "I'm very much rooted in the competencies…the competencies have to be attached to our objectives and then have to be assessed so that it anchors back in at the foundation of competency."

Yet another potential stumbling block associated with the delivery of RMMs in an IPE format is that both the IPE and research methods components need to be delivered and assessed, adding to the complexity of the module design. While the learning outcomes related to the research elements will vary between programmes, the participants in this study have all identified the importance of competency-based learning and assessment to inform the design of IPE-based learning outcomes. Although there various IPE competency guidelines for different geographical areas, they are broadly similar as discussed previously. It is incumbent upon module leaders and designers to be mindful of the IPE aims they wish to achieve and to structure the learning outcomes and assessment strategies of the research module accordingly. In the absence of this approach, the modules are likely to become shared learning.

In addition to the themes identified above, a number of miscellaneous points worthy of mention include the importance of cohort size and educational level, in the viability of IPE RMMs. Smaller overall class cohort sizes allowed for more complex and interactive activities, which were possibly beyond the scope of larger groups. Some participants proposed that undergraduate students may have been unsuitable for IPE research methods, in their experience, due to a lack of insight into the role of research, whereas the experience of participants P1 & P2, was that foundational modules as discussed above prepared undergraduates appropriately. A distinct pedagogical approach – team based learning – was only identified by one site with a flipped classroom approach identified as useful by the majority of participants. Assessment strategies were discussed by all participants apart from participant P6, and included a mix of individualised and group exercises, with an emphasis on reflective activities and the use and/or development of IPE specific outcome measures for some assessments. Finally, a theme common to IPE more globally, namely the importance of senior management to champion IPE, also emerged.

Concluding comments

RMMs are key components of many healthcare curricula and due to the subject matter shared amongst disciplines, may be amenable to delivery in an IPE forum. This study has gathered together and synthesised the experience and knowledge of leading international experts in IPE regarding the viability of delivering RMMs in healthcare curricula. Although they did not agree on the fundamental question as to whether or not RMMs and IPE make happy bedfellows, they did provide some common tenets, which may be useful if such an approach is to be adopted.

These tenets included the provision of prior foundational IPE learning to prepare and orient the student to their own profession as well as other professional group. An introductory module may address competencies of communication and teamwork, which are fundamental to IPE functioning. The development of meaningful research topics using themes that

resonate both professionally and personally with students was strongly recommended. This approach was seen as key to securing student buy-in and an appreciation of the relevance of RMMs to their professional development. Another key theme was the recognition of the challenging nature of RMMs, which are often perceived by students as difficult and lacking applicability. The addition of IPE to an already complex area may exacerbate the negative connotations associated with RMMs and afflict IPE with the same reticence and apathy. Finally, aligning module design, including delivery and assessment, to an existing IPE competency framework was viewed as important to ensure rigour in delivery of IPE RMMs.

Clinical and practice-based modules currently represent the core IPE vehicles encountered by healthcare students. However, bearing in mind the tenets outlined above, RMMs offer potential as an additional forum to encourage competency based learning. More extensive research is needed with academics and students to establish how best to teach, assess and evaluate these modules.

Code and Academic Status of Participant Description of Affiliation	Clinical/ Educational Background	IPE Contribution of Participant (selected)
P1: Professor P2: Doctor (PhD) Private University United States 4,500 undergraduate and postgraduate students undertaking programmes in Nursing, Public Health, Social Work, Psychology, Accounting and Biology.	Nursing Nursing	Director for IPE Research, and Practice. Co-founder and coordinator of the regional Interprofessional Evidence-based practice Clinical Scholar Programme. Course leader for multiple IPE modules including research methods. Leader IPE curriculum re-design 2015. IPE cohort size: Approximately 60 students,
P3:Doctor (PhD) University Scotland, United Kingdom Large university catering for over 20,000 students in areas including Health and Life Sciences, Engineering and Business.	Podiatry	Associate Dean Learning, Teaching and Quality IPE module and strategy lead since 2010. Teaching /facilitating IPE since 2004. IPE student cohort of 1,200 students.
P4: Doctor (PhD) University, Southern Australia 25,000 students undertaking courses of study including Nursing & Health Science, Medicine & Law, Business, Education, Science and Engineering.	Medicine	Senior Lecturer in Clinical Teaching & Learning IPE module leader since 2012, postgraduate student cohort. Former lead of the institutional Health Professional Education Unit

P5: Assistant Professor University, Canada 89,000 students undertaking courses of study across a broad array of disciplines. Professional programmes include Education, Nursing, Dentistry, Pharmacy, Law and Medicine	Occupational Therapy	Faculty Lead for Curriculum at the Centre for IPE. Responsible for the development, implementation and evaluation of the IPE curriculum for 3,700 students from eleven health science programs.
P6: Professor University, United States 48,000 students undertaking programmes across the faculties of Biostatistics, Environmental Health Sciences, Epidemiology and Community Health, and Health Policy and Management.	Education & History	Professor in the Department of Pharmaceutical Care & Health System. Senior leadership role, National Center for Interprofessional Practice and Education

Appendix A: Participant detail

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