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ARTICLE

# A top-down approach impedes the use of theory? Interprofessional educational leaders' approaches to curriculum development and the use of learning theory

Deborah Craddock[1], Cath O'Halloran[2], Kathryn McPherson[3], Sarah Hean[4] and Marilyn Hammick[5]

*[1]Health Sciences, University of Southampton, Southampton, UK, [2]University of Hudderfield, Huddersfield, UK, [3]AUT University, Auckland, New Zealand, [4]Health and Social Care, Visiting Faculty, Bournemouth University, Bournemouth, UK, [5]NA, Effingham, UK*

**International policy has emphasized the development of interprofessional education (IPE) to reinforce interprofessional practice. This study explored the extent to which IPE initiatives in the UK are based on sound theoretical frameworks. Findings from semi-structured interviews with lead IPE curriculum developers at eight higher education institutions are presented which identified curriculum developers' developmental approaches to IPE. The findings reveal a notable lack of explicit theoretical basis for models of IPE. In many cases, senior managers determined the institutional approach to IPE which academic staff then needed to deliver. Curriculum developers reported adopting a largely practical approach to IPE curriculum development. However, questioning that focused on learning and teaching methods revealed that a range of learning theories was used implicitly. The significance of these findings is discussed with recommendations to inform future curriculum development of IPE initiatives.**

**Keywords:** Curriculum development, education, interdisciplinary education, interprofessional education, prequalifying program, theory

## INTRODUCTION

Recent policies internationally (World Health Organisation [WHO], 2010) and in the UK (Care Quality Commission, 2009) have emphasized the potential contribution of interprofessional education (IPE) to quality and safe healthcare delivery. Within the UK, the integration of IPE into prequalifying curricula is mandatory (Department of Health and Quality Assurance Agency [QAA], 2006) to enhance the workforce's readiness for collaborative practice (Robson & Kitchen, 2007). The WHO (2010) emphasized that a workforce trained in interprofessional collaboration is necessary to reinforce the values of healthcare systems and ensure that optimal healthcare is delivered.

Curriculum development for IPE is not easy (Horsburgh, Perkins, Coyle, & Degeling, 2006), with little evidence-based literature available to guide faculty development of IPE initiatives (Silver & Leslie, 2009). The structural and attitudinal barriers faced in developing and implementing IPE are considerable (timetabling, shift incompatibility and professional stereotyping being among these). However, curriculum developers in UK Higher Education Institutions (HEIs) that offer prequalifying health and social care programs continue to address these barriers even though little research is available on types of IPE initiatives which are most effective at improving health outcomes of patients, team working or the performance of health organizations and systems (Silver & Leslie, 2009)

Barr, Koppel, Reeves, Hammick, and Freeth (2005) emphasized that theory in IPE can be used to encourage systematic, methodical and analytical thinking, enabling IPE and collaborative practice to be better understood (Reeves, Lewin, Espin, & Zwarenstein, 2010). This will facilitate educators to explain IPE in theoretical terms to colleagues from their own and other professions (Colyer, Helme, & Jones, 2005). Theory is a set of propositions/hypotheses linked by rational argument (Jary & Jary, 2000) based on principles that are coherent, generalizable, transferable and of continuous applicability (Colyer et al., 2005). In IPE, theory supports the articulation, reflection and potential reinterpretation of existing practices, providing a tool with which we can engage in second-order reflection (Hean, Craddock, & Hammick, 2012; Wackerhausen, 2009). However, at present no single IPE theory (Hean, Craddock, & O'Halloran, 2009)

Correspondence: Sarah Hean, Health and Social Care, Visiting Faculty, Bournemouth University, Chirstchurch Rd, Bournemouth, UK.
E-mail: shean@bournemouth.ac.uk

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or pedagogical method (Hobgood et al., 2010) is considered to be superior.

This paper takes the philosophical standpoint of pragmatism (Dewey, 1923) in our conviction that theory or thought is essential for intelligent practice, and that theory and practice cannot and should not be separated. It focuses on the theory of education, defined as something that guides, explains or describes educational practice (Thomas, 2007). We acknowledge that there are a plethora of theories that could be used to describe and explain IPE, including Marxism, capitalism, feminism and phenomenology. However, as our study explored UK-based leads' approaches to IPE curriculum development, we specifically focused on learning theories, meaning theories that describe how IPE initiatives are developed to facilitate formalized student learning that takes place in an interprofessional context. Psychosociological theories addressing issues associated with group dynamics or group identity (e.g. the contact theory, realistic conflict theory, social identity theory and self-categorization theory), and sociological theories addressing issues of socialization and professionalism are put to one side.

There are two key families of learning theory with application to interprofessional learning (IPL), including constructivism and behaviorism (Hean et al., 2009). The former considers the process of learning and incorporates both cognitive constructivist and socio-constructivist approaches to learning. The development of outcome-based IPE curricula draws on *behaviorism* (Skinner, 1953). Here, operant conditioning can arguably be facilitated by problem-based learning where facilitators play a key role in providing positive and/or negative reinforcement to alter undesirable behaviors (Jarvis, Holford, & Griffin, 2003). In IPE curriculum development such outcomes may be informed by the publication of competencies by the Sector Skills Council for the UK Health Sector ("Skills for Health"), proficiency statements by UK regulatory bodies and benchmark statements by the Quality Assurance Agency (Barr, 2007). However, if behaviorism is chosen to underpin IPE curriculum development, there is a risk that in concentrating on the "outcomes of IPE" the processes that have underpinned this learning may be ignored (Hean et al., 2009). Furthermore, in operant conditioning, the conditioned response is reinforced by a succeeding stimulus (Jarvis et al., 2003). It may therefore be claimed that a stimulus, such as assessment, influences the response and that the outcome is, thereafter, predetermined.

Within *cognitive constructivism*, adult learning theory (ALT) was identified as a key mechanism for the well-received IPE (Hammick, Freeth, Koppel, Reeves, & Barr, 2007). However, Knowles' (1984) view of andragogy has resulted in more controversy than any other pedagogic theory: reviews of andragogy have tended to be inconclusive as a result of varying interpretations of the term, and uncertainty as to whether this is a theory, a set of assumptions about learning or a theory of teaching (Rachal, 2002). Rather than simply being a theory stressing a reliance on an incremental approach to building knowledge, ALT has evolved to include consideration of "perpetual perspective transformation" (Hayes & Wilson, 2001, p. 270). In this paper, we view ALT, not as a theory in itself but a collective noun for a group of pedagogical approaches best applied to the adult learner, a learner that is more open to independent and self-directed learning (Hean et al., 2009).

It is now thought that fully developed learners move through a series of developmental stages before they achieve the ability to engage in transformative learning. This learning enables students to reach their highest potential for understanding, enabling adults to acquire insight, ability and disposition to realize their full potential and cognitive development (Mezirow, 2004). A range of pedagogical approaches are used to facilitate learners' abilities to engage in transformative learning, including self-directed learning, case-based learning, guided discovery learning and problem-based learning (Craddock, O'Halloran, Borthwick, & McPherson, 2006).

These pedagogical approaches are also applied in *social constructivism* supported by "scaffolding" such as learning group facilitators or e-learning (Jarvis et al., 2003). In the IPE field, at a micro-level, Vygotsky's sociocultural learning (1978) theory and his concept of the zone of proximal development have been applied explicitly in a few IPE curriculum development initiatives (e.g. D'Eon, 2005) and implicitly in another (Curren, Sharpe, Flynn, & Button, 2010). At a macro level, social constructivism manifests as theories such as *communities of practice* (Wenger, 1998), *activity the*ory, *expansive learning* (Engeström, 1987) and third-generational cultural historical activity theory (CHAT) involving polycontextuality and boundary crossing across collective systems (Engeström, Engestrom, & Karkkainen, 1995). In 2009, Engeström also identified the potential need for a fourth generation of CHAT with innovative forms of activity in which interaction takes the shape of knot working without a stable center (Engeström, 2009). However, in education practice, few authors report on IPE models using communities of practice where members of the IPL group work together with a sense of belonging and mutual commitment to the program in both campus (Dahlgren, 2009) and placement settings (Mann et al., 2009).

It is believed that a sound evidence base giving consideration to educational theory is necessary for sustainability of IPE in professional curricula and to enable it to withstand scrutiny from key stakeholders (Glen & Reeves, 2004). Yet despite increasing research, the application of theoretical perspectives to the design, implementation and evaluation of IPE remains an area for development (Reeves et al., 2011).

There is therefore a need for published papers to outline theoretical frameworks and investigate whether practicing education curriculum developers use theory explicitly or consistently in the design of IPE initiatives or in the studies evaluating them. This study therefore seeks to add to the body of knowledge on this aspect of IPE, by focusing on IPE curriculum developers and by exploring their approaches to curriculum design, especially the theoretical underpinning they employ when designing these educational interventions. The research questions are as follows: (1) How do UK-based leads approach IPE curriculum development? and (2) What

learning theories are used to underpin developmental processes?

## METHODS

The study adopted a grounded theory approach and employed semi-structured interviews with IPE curriculum developers. Ethical and governance approval was granted by the University of Southampton Ethics Committee. Each curriculum developer volunteered to participate in the study, giving written informed consent that included agreement to recording their interview and the use of anonymized verbatim quotations (Gerrish & Lacey, 2010).

### Data collection

This study formed part of a wider study that explored the impact of IPE interventions involving UK Podiatry students. For this reason, the convenience sample focused on the lead IPE curriculum developer at eight UK HEIs offering a BSc (Hons) Podiatry amongst their preregistration programs ($n = 8$). To promote credibility and transferability of findings a comprehensive audit trail was kept, using rigorous methods for qualitative data collection and analysis. Semi-structured interviews were conducted with each participant (30–90 minutes in duration). An interview schedule was used to guide these interviews, enabling in-depth exploration of each institution's model and vision of IPE and the theories guiding the development of the learning/teaching strategies, learning outcomes and evaluation of their IPE initiative.

To promote the transferability of findings, interviews were carried out by the same interviewer in each participant's office setting, and records of all interviews and the process of analysis were documented in full. Interview questions relating to areas identified in the interview guide were open-ended, neutral, coherent and singular. To enhance credibility of data collection, a reflexive journal was kept by the interviewer, enabling immediate observations about the interview process and to monitor/minimize the potential influence of the interviewer–interviewee interaction as far as possible on the data collected (Patton, 2002).

### Analysis

Interviews were transcribed verbatim before being thematically analyzed by two researchers, using key elements of grounded theory. Open coding of each line of transcriptions informed the definition of actions or events within the data. Categories elicited were constantly compared with prior data so that commonalities and variations could be determined. This was followed by axial coding and then selective coding. The resulting conceptual codes accounted for the most data and categorized them more precisely, shaping the emerging analytical framework. The rigor of the findings was established using analyst triangulation, reaching good agreement on the key themes and interrelationships between them (Charmaz, 2000; Polit & Beck, 2006; Strauss & Corbin, 1998).

## FINDINGS

Most study participants were female ($n = 5$) and had worked in higher education for over 20 years ($n = 6$). They represented a range of healthcare professions, including nursing, occupational therapy, podiatry, physiotherapy, midwifery and radiography. Following analysis, three key themes emerged: a "top-down" approach; making it happen – logistics, structure and people; and reality of what actually happens." As no new themes were introduced in the last key informant interview, it was reasonable to assume that data saturation was attained after the seventh key informant interview.

### A "top-down" approach

This theme brought together data describing the organizational structure for developing IPE and the rationale given for adopting that approach. All informants described a "top-down" approach to IPE curriculum development, with the initiative being driven by senior managers, i.e. Deans or Heads of Faculty, who via strategic management committees delegated the development of the IPE initiative to a task group:

> "We had some fairly vague faculty objectives to push IPE and improve our IPE. That was a top down approach; that was because the Government had told us to do it. The Dean had said right well let's do it . . . " (HEI 5)

> " . . . each group is being asked to nominate its own representative . . . we have three Heads, Faculty Heads . . . and one of those is also going to be involved because we think that this is an agenda that will filter down . . . first of all discussing it at the School Teaching and Learning Committee. They've set up a specific IPE group within the School to look at issues around IPE and it's largely a sort of cascade communication strategy that we've developed." (HEI 7)

The perceived rationale for this top-down approach varied across all HEIs in the study. It was believed that senior managers needed to negotiate collaborative partnerships across the region, across a number of HEIs and among staff groups. Such an approach was thought to be necessary to ensure that staff, faculty and university targets were developed to meet QAA benchmark statements and requirements from external bodies. It was influenced by validation events and the need to involve individuals who "were able to make decisions quite quickly" (HEI 1).

This top-down approach to IPE curriculum development was reportedly deemed necessary to counter anticipated staff negativity, in order that structural barriers could be addressed before the IPE model was devolved to staff:

> " . . . we shifted all the barriers we could before we then devolved them to module teams. We said right as the course leaders we've done it, we know you can do it and we know the timetable, you get on and do the subject stuff now . . . we shifted the barriers before people could come back with these arguments." (HEI 2)

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Within the task groups set-up, members' responsibilities varied. Some were given the learning outcomes associated with the IPE initiative in a key strategy paper and encouraged to be actively involved in decisions relating to the development and implementation of the curriculum. In the majority of HEIs, developing IPE learning outcomes was delegated to the task group with other responsibilities. Membership of the task groups included the IPL lead and staff representing all programs required to incorporate the IPE initiative, and the need for a clear remit for the task groups from senior managers was reported by all informants.

> "We started at a strategic level of the vision of what we wanted, what our definition of IPE was and how often you know it was going to be double modules in each year of the programme and all the health care courses were going to buy into it . . . And then the actual learning outcomes and the module descriptors were all left up to our, a programme committee, a planning group which was made up of all the programme leaders of the undergraduate programmes that are going to take part in this. Plus we had our, another committee . . . of external people like clinical supervisors and things, just to give us some extra feedback . . . " (HEI 1)

> " . . . folk are given their chance to have a say . . . those who have been keen and committed have actually been the ones who have done the bulk of the work and the others don't actually have a choice now because the collaboration certainly is here to stay." (HEI 6)

This organizational approach for developing IPE initiatives was mirrored across all HEIs.

#### Making it happen: logistics, structures and people

All informants described taking a practical approach to curriculum development with decision-making focusing on either the development of a new IPE module, the integration of IPE into existing modules; the identification of common materials/core skills needed by all graduates and how to manage the logistics of bringing students on different programs together.

> " . . . we've moved, certainly moved away from the... either the need or the intent to look at all the professional groups we've got coming together at one great big Jamboree, that doesn't seem to be appropriate . . . Again it's trying to identify times in the timetable when this might happen. And the logistics of that haven't been easy . . . " (HEI 6)

> " . . . we took a fairly independent view that said we pretty much know what we've got to do, that's the agenda, let's do it in a fairly pragmatic way, let's do it so we get some of the reactions that we require rather than meeting somebody else's agenda . . . " (HEI 2)

To facilitate preparations for introducing IPE initiatives to staff and students, the need to explore the rationale and benefits of IPL was emphasized. Most informants carried out scoping exercises, learning from other HEIs and/or liaising with "national experts." Finding people supportive of IPE was seen as necessary to motivate colleagues. Despite participants recognizing a need for education theory to underpin the educational strategy for IPE, most informants had limited awareness of the theory underpinning their respective IPE model during its developmental stage:

> " . . . it's just how they implement it, the best way they can implement it for their University and for their students . . . our outcomes and our learning and teaching strategies, are all locked together with what we are doing within our tutorials . . . but I'm not very aware of what the theoretical underpinning is . . . " (HEI 8)

A "trial and error" approach was adopted by some institutions with one respondent referring to IPE curriculum development as a "steep learning curve" (HEI 2). Decisions regarding curriculum development were based on curriculum developers' professional experiences, utilizing existing uniprofessional program models within the institution. Factors influencing IPE curriculum development were linked to the logistical feasibility of the initiative within the respective HEI at that time. The importance of being both reflexive and realistic was emphasized, and the feasibility of the learning and teaching strategy was related to student numbers.

> "It would very much depend on why you would want all those groups together and logistically whether it's possible . . . Because we felt as I said in year one they really do need to feel comfortable with their own profession and in year three we thought that was a bit late so the obvious choice was year two . . . " (HEI 4)

> " . . . we also looked at what was possible logistically because for example the OTs have a whole term out on placement, so they are not available locally to participate... unless we are going to offer IPL on two separate occasions in a year . . . So we looked at the logistics basically." (HEI 3)

Several participants acknowledged that educational theory might underpin their IPE models that had been considered only after the IPE initiative had been developed. This underutilization of education theory to inform IPE curriculum development was believed to be due to a paucity of IPE research at the time of curriculum development within the institutions. One participant considered IPE literature had the potential to impact negatively on curriculum development:

> " . . . if we had really looked [IPE] up in the literature in the earlier days I think we might have been so frightened off that we couldn't have done it." (HEI 6)

Nevertheless, the need for institutions to have time to develop models of IPE and plan ahead was recognized as key to the sustainability of IPE and the methodological quality of evaluations. It was believed that IPE developments would become easier with time, and could potentially facilitate the development of stronger faculty objectives.

### Reality of what actually happens

This theme brought together data relating to the decisions made about learning, teaching, assessment and evaluation of IPE interventions. Most informants emphasized the need to incorporate generic issues within the content of IPE initiatives including developing effective interprofessional relations, enhancing team working competencies and skills, enabling understanding of professional roles and team values and facilitating an exploration of interprofessional collaboration in practice to benefit patient care. This was used to address practice issues associated with attitudinal barriers, such as interdepartmental breakdown in communications. Students were encouraged to "think outside the box" via the use of stimulus materials derived from real issues:

> "it will be a bit about what do the other professionals do but in the context of what their own profession does . . . do it around things like diversity and about communication and how maybe different professional groups have a different approach to the work . . . about the understanding professional roles, promoting team values and enhancing team competencies and skills . . . stereotypes, what they thought were the characteristics of each other's professional groups." (HEI 4)

> " . . . choosing case studies that all the professionals have an input in . . . a patient journey or a client journey . . . we'd look at the different points where different professionals come in and out rather than the expectation that everybody comes in at any one point." (HEI 1)

IPE was integrated into curricula in three different ways. In some, common IPE modules were included in all the programs or IPE learning outcomes were embedded in the curriculum. However, in others, no consistent IPL outcomes were in place. Instead, there were different IPE learning outcomes in the health and social work programs being delivered within the HEIs. The need to develop learning outcomes in line with external benchmark statements and to provide transparent curriculum mapping for campus and/or placement learning opportunities was thought to be the reason for this variation.

Learning outcomes were seen as a way to embed IPE initiatives in programs. Information on the learning outcomes and IPE content was provided to students in written handbooks and/or during student induction programs. Interprofessional as opposed to multiprofessional learning was preferred, although several informants emphasized that their learning and teaching methods employed the use of multiprofessional learning followed by interprofessional group work. The importance of embedding a reflective element was emphasized.

Interactive learning and teaching methods were used, with some informants aspiring to include activities to cultivate independent learning. Several informants developed case-based learning to facilitate the delivery of the curriculum content associated with the IPE initiative. These were frequently tailored to ensure relevance to all professions represented in the IPE group, and were presented flexibly to allow students the freedom to adapt the script in different scenarios as they thought appropriate.

The use of real generic case study material was frequently reported, with one respondent emphasizing the need for this to be of "research quality" with transparent professional relevance in order to motivate students (HEI 8). In a number of instances case studies were combined with inquiry-based approaches that encouraged interprofessional problem solving. To enhance professional relevance, several informants suggested that the stimulus material used should have a practice focus, such as exploring community healthcare provision, and should challenge students' approaches to decision-making.

> " . . . what we used was complaints off the Ombudsman's site, you know about breakdowns in interprofessional working and about poor communication and all the sort of real life issues that happen when groups of professionals come together . . . we tried to make it relevant . . . to the different groups . . . " (HEI 3)

> " . . . [students] going out to see patients or a client . . . are quite surprised at the number of decisions that are made by the patient or the client, and that there is a joint assessment there waiting for them . . . " (HEI 8)

Informants described using a range of interactive learning and teaching methods including simulation theatres, precollaboration days and case conferences to facilitate reflection on IPL. They anticipated that case conferences would facilitate the spreading of "positive news" and one respondent commented that embedding this activity within each program had a positive effect on student attendance (HEI 5). Other HEIs used role-play activities. IPL was then incorporated within tutorials, self-directed study and presentations to reinforce students' learning. In some cases, lectures or tutorials were developed by an interprofessional team, specialists from several professions involved in the IPE programs. Teaching was followed by workshops focusing on key issues to enhance students' learning experiences. Several HEIs used observational placements to enable students to experience the benefits of interprofessional working in practice.

Approaches to IPE assessment varied across the HEIs. They acknowledged the value of summative assessment, but only one HEI included the summative assessment of IPE learning outcomes in their programs. Other IPE initiatives either included formative assessments or adopted an inconsistent approach to assessment. They recognized a need to review and evaluate IPE initiatives within HEIs, and implement changes in light of student and staff feedback. A range of evaluation strategies were evident. Examples included the use of anecdotal feedback obtained from staff, full evaluations after a one-off session and the use of standard module evaluation forms. The need for formal review mechanisms of campus and placement-based learning at the planning stage of curriculum development was acknowledged. It was felt that such mechanisms would illuminate the effectiveness of IPE in relation to students' attitudes,

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curriculum development, delivery and the evaluation of whether IPE creates better team workers.

> "... we would be looking throughout the process as to how this has affected things like attitude, like curriculum development, like delivery in the classroom, etc... So there would be the two sides of it: the standard is it working, are the students achieving the learning outcomes with that, then there would be the process stuff and then there is other stuff... like outcome evaluation... how far do we know that they are going to be good team workers, that will only happen when they're actually out in practice." (HEI 7)

All participants acknowledged the evolving nature of IPE initiatives and identified future development plans. These involved the identification of other professions to share in the initiative, developing joint awards, involving patient contact in placement settings, evaluating placement experiences and developing IPE initiatives in all levels of study.

## DISCUSSION

This study highlighted that for the UK HEIs, a "top-down approach" to introducing IPE was dominant, in response to strategic goals set by senior managers. The development of IPE curricula was largely driven by matters of structural constraints, content and logistics. Findings suggest that IPE curriculum developers to date have not used educational theory to underpin the design of IPE initiatives. Instead, they are drawing on their "everyday" or "common-sense" approaches to implement successful IPE initiatives. Participants' pedagogical approaches were articulated clearly when describing teaching strategies, but minimal reference was made to the behavioral or constructivist origins of these strategies. This is perhaps unsurprising as the documentation required by HEIs for validation and approval of programs of study usually requires that teaching, learning and assessment strategies are made explicit but rarely requires similar openness about the curriculum model and its underpinning theory. Miller, Woolf, and Mackintosh's (2006) evaluation of four leading edge sites in IPE in the UK adds credence to these findings, as the report presents little detail in relation to the educational theory.

Curriculum discussions focused on the structure of the respective IPE curriculum models rather than the educational theories underpinning the learning processes to be engendered. Educational theory was alluded to in two instances with consideration of constructivism only after their respective IPE initiatives had been developed. This suggested that it was perhaps more of an afterthought than a guiding influence, with an emphasis on "how" as opposed to "why" certain approaches were adopted.

When underpinning theory in IPE curriculum development remains implicit, it is difficult to judge or share practices. All study informants were articulate in discussing the learning and teaching methods used in their IPE initiatives; most alluded to the need to reflect on adult learning principles. As in Miller et al.'s (2006) evaluation, ALT was referred to in this study to describe how the IPE curriculum was delivered in each HEI via a collection of pedagogical approaches, including case-based learning (Spencer & Jordon, 1999), collaborative learning facilitator-led interactive discussions (O'Halloran, Hean, Humphris, & Macleod-Clark, 2006), self-directed learning (Kaufman, 2003), experiential learning (Miettinen, 2000) and reflective learning (Schon, 1987). These approaches are consistent with the findings of others who have discussed the educational philosophy guiding the design of IPE models (e.g. Barr et al., 2005). In this study participants made no reference to transformative ALT (Mezirow, 2004), despite Stone (2006) emphasizing the value of this theory which enables students to become more reflective, more open to the perspectives of others, less defensive and more accepting of new ideas.

In the absence of explicitly identified educational theory in the IPE curriculum models of participating HEIs, the learning and teaching methods were identified to enable the authors to determine the education theory being used, albeit implicitly. As noted above, this study suggested that the theories being used implicitly to underpin IPE initiatives at participating HEIs were primarily cognitive and social constructivist in nature. In relation to the former, in accordance with Perry's (1970) developmental theory, IPE facilitated students' awareness of the complexities of professional working, providing an opportunity for them to value the perspectives and contributions of their own and other professions. Although no informants clearly identified the ways in which their IPE initiatives developed students' knowledge by activating and building on their existing knowledge bases, it is considered that IPL opportunities provided allowed students some opportunity to assimilate contextual information. It is therefore reasonable to assume that in subsequent interactions with the students' existing knowledge base, this contextual assimilation may enable the accommodation of new knowledge (Piaget, 1973).

At the same time, the use of small groups in IPE courses at all HEIs provided an opportunity for students to learn with, from and about other professions. According to social constructivism, such social encounters influence learners' meanings and understandings (Woo & Reeves, 2007). It is this opportunity for sociocultural learning that differentiates IPL from uniprofessional learning (Hean et al., 2009). The concept of scaffolding (Vygotsky, 1978) may have been applied instinctively, with students in interprofessional groups receiving support from both facilitators and peers to undertake activities, enabling them to master concepts and ideas they could not understand in isolation. When IPE modules have been completed (i.e. when scaffolding of guided activities is removed), students should be able to independently apply their IPL to new situations. Arguably there is, as yet, insufficient evidence to judge whether this happens.

This study found that HEI IPE leads did not spontaneously identify the educational theories underpinning the pedagogical approach they adopted for their IPE curricula. This raises the question of whether or not the

atheoretical nature of IPE curriculum development matters. We contend that it does, agreeing with Clark (2006) who emphasize the need to use educational theory to guide the development of IPE program structures and processes. This study's results suggest that approaches to IPE curriculum development were principally influenced by logistical issues within the HEI. Seemingly, a trial and error approach was commonly adopted which may be ineffective and costly in relation to time and effort. In the short term, it may have a detrimental effect on students' learning experiences, and in the long term, it may influence practitioners' abilities to collaborate effectively. If educational theory continues to be underused in guiding IPE curriculum development, IPE may lead to in outcomes directly in conflict with those that were intended.

The study was an exploratory one to understand why there is a dearth of published literature exploring the theoretical underpinnings of IPE curriculum design. As an exploratory study, it has limitations, including a small sample which influences the transferability of findings to IPE curriculum developers at other HEIs. Furthermore, this study did not relate the views of the eight people interviewed and the much larger apparatus of the curriculum design process at each university with regard to the IPE provision. Future research could therefore consider discourse or rhetorical analysis of key curriculum texts, course evaluations, students' collective assignments, external examiners' and inspectors' reports to expand our understanding of the theories underpinning curriculum design.

Interviews of grassroots educators could also unpick in greater depth their understanding of "theory," or their awareness of specific learning or curriculum theories in their practice. Ethnographic exploration of educators and learners at work co-constructing theory in practice are other avenues. The relationships between the three themes described in this study need also be explored. This is fundamental to testing a developing and emergent understanding of why a top-down approach may lead curriculum developers to be so focused on logistics and making it happen rather than stepping back and exploring the theoretical underpinnings of the curricula they design.

## CONCLUSIONS

This study revealed an absence of educational theory underpinning recent IPE curriculum development. This lack of theoretical grounding meant that no IPE curriculum model could be explained clearly to enable practices to be judged and/or shared. It remains to be explored if this is derived from educators being so embedded in their educational practice that these theories are second nature to them or whether there is a lack of awareness of underpinning theories to begin with. If the latter, this points to the need for faculty development to ensure curriculum designers are aware of the importance and range of theories available to them to inform their practice.

IPE initiatives with a theoretical base must remain focused on preparing future health professionals for collaborative working. This is reliant on academics from relevant disciplines openly comparing, contrasting and where appropriate amalgamating theoretical perspectives used in IPE initiatives. This will facilitate reflection, communication and collaboration to enhance curricular content, improve learning and teaching methods and ultimately strengthen the design of future pre- and post-qualifying IPE programs.

A coherent account of the theoretical framework for IPE curriculum models increases the possibilities of exploring and comparing the influence of IPE models via rigorous research methods. To strengthen the evidence base and IPE curriculum development processes, it is important to learn from these examples of good practice in IPE curriculum development. We stress the value of available resources, such as a toolkit that summarizes key learning theories used in IPE and the relationship between them (Hean et al., 2009); and models that assists interprofessional educators focus on the context in which theory might best be applied (Hean et al., 2012). We suggest that IPE theory is discussed and agreed at the start of the development of IPE module and program structures, helping to specify learning outcomes and influencing decisions about learning, teaching and evaluation methods. If IPE and collaborative practice is to fulfill its role in mitigating challenges faced by health systems around the world, future commitment to reflect on current practices and educational theories underpinning curriculum development processes that support working collaboratively is paramount.

### Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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