

## Where in the world is interprofessional education? A global environmental scan

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### Abstract

Despite increasing recognition for the importance of interprofessional education (IPE), little is known about *where* in the world it occurs, *how* it is conducted and *why* it is offered. This international environmental scan was commissioned by the World Health Organization (WHO) to answer these questions and inform efforts to support IPE on a global scale. An internet-based survey targeting educators and researchers in WHO's 193 Member States was conducted between February and April 2008. Participants were recruited by WHO staff through a range of country focal points, collaborating centres, regional networks and partner organizations. The scan garnered 396 responses representing 41 countries from WHO's six regions, various income-economies and many health professions. IPE was often (i) voluntary (22%); (ii) not based on explicit learning outcomes (34%); (iii) not assessed for what was learned (63%); (iv) not offered by trained facilitators (69%); and (v) not formally evaluated (30%). Participants reported many benefits of IPE for education, practice and policy. Results are limited primarily by reliance on self-reports and an English-only, internet-based questionnaire. Significant efforts are required to ensure that IPE is designed, delivered and evaluated in keeping with internationally recognized best practice.

**Keywords:** *Interprofessional relations, interprofessional education, world health, cross-sectional survey, benchmarking*

### Introduction

Interprofessional education (IPE) was recently elevated to the global health agenda when the World Health Organization (WHO) recognized it as a necessary component of every health professional's education (WHO, 2010a, Yan, Gilbert & Hoffman, 2007). While there is general agreement that IPE occurs *when* "two or more professions learn with, from and about each other" (Centre for the Advancement of Interprofessional Education [CAIPE],

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2002), *where* in the world it occurs remains unclear. The literature demonstrates that IPE is occurring in several countries (e.g., Australia, Canada, Sweden, UK and USA) while a review of conferences and regional IPE networks indicate many others (e.g., Belgium, Denmark, Finland, Greece, Hungary, Iran, Ireland, Japan, Malaysia, New Zealand, Norway, Poland and South Africa). The extent to which IPE is offered globally, however, has not been systematically assessed, and a review of published research may not identify existing IPE in countries with low- or middle-income economies. This information is important for identifying local efforts on which global health organizations and national governments can build.

*How* IPE is currently offered is also not well known. An examination of current IPE practices can provide insight into the diversity of strategies being utilized, identify existing challenges, inform the development of global best practices, and highlight opportunities for improvement. Comparisons between research and practice also allow for “know-do” gaps to be uncovered and corrected.

The reasons *why* IPE is of value to those who offer it is also an important issue. Several systematic reviews (Barr, Freeth, Hammick, Koppel, & Reeves, 2000; Barr, Koppel, Reeves, Hammick, & Freeth, 2005; Cooper, Braye, & Geyer, 2004; Hammick, Freeth, Koppel, Reeves, & Barr, 2007; Reeves, 2001) and an overview of reviews (Reeves, Goldman, Sawatzky-Girling, & Burton, 2008) have indicated its potential impact, yet no researchers to date have sought to identify the benefits personally observed by IPE leaders. An understanding of the motivations of these individuals can inform the development of strategies to foster future IPE champions and further global development of IPE.

This paper reports on a study that was commissioned by WHO to provide initial answers to these questions outlined above, and to inform the efforts of supporting IPE globally. It was conducted as part of a larger undertaking by the WHO Study Group on Interprofessional Education and Collaborative Practice to assess the state of IPE internationally and develop its *Framework for Action*. Other components of this international effort have been described elsewhere (Mickan, Hoffman, & Nasmith, 2010; Thistlethwaite & Moran, 2010; WHO, 2010a; WHO, 2010b; Yan, Gilbert & Hoffman, 2007).

## Methods

### *Study design*

This global environmental scan of IPE practices consisted of a cross-sectional descriptive internet-based survey design. The scan was informed by the research literature on strategic planning and gathering data with particular reference to the external environment of organizations (Choo, 1999; Morrison, 1992). In this case the organization was WHO, and the interest was in determining the status of IPE globally with a view to informing strategic directions and recommendations by the WHO Study Group. Project design was influenced by limited resources and time frame and need for global accessibility of the survey.

### *Participants*

Target participants were individuals who worked with health professional students in either educational institutions or clinical practice settings in any of WHO's 193 Member States. They were recruited primarily via an email letter of invitation distributed by WHO staff at its global headquarters in Geneva and regional offices in Brazzaville (Africa), Cairo (Eastern Mediterranean), Copenhagen (Europe), Manila (Western Pacific), New Delhi (South-East

Asia) and Washington, DC (Americas) through a wide range of country focal points, regional networks and partner organizations.<sup>1</sup> Links to the survey were also posted on several IPE organizations' websites.

### *Data collection and analysis*

The survey contained three sections. The first section solicited demographic information about respondents, including their country of work, profession, position, the student cohorts with whom they worked, and their gender, age, and experience with IPE as students and educators/professionals. The second section asked questions about the IPE teaching program in which participants were involved. Topics included learning opportunities, duration of students' involvement in IPE, types of students involved and their year/level in undergraduate or postgraduate programmes, the use of learning objectives, and assessment of IPE. The third section gathered respondents' perceptions about the benefits of IPE for teaching and learning, practice and policy.

The majority of questions contained fixed responses in order to limit the time required for completion and analysis. A definition of IPE, based on the CAIPE definition, was provided to aid consistency of interpretation (CAIPE, 2002). Although resources and time precluded translation, a communication specialist ensured English language accessibility.

The survey was conducted between February and April 2008. The letters and the opening page of the internet-based questionnaire provided information on WHO's IPE-related activities, the nature and length of the survey, and assurances of anonymity.

Simple descriptive analyses of the data were undertaken using frequencies and percentages. Responses to open-ended questions were analysed using standard content analysis techniques (Patton, 2002).

Ethics approval was not required for this environmental scan as per the institutional policies of the World Health Organization.

## **Results**

Three hundred and ninety-six surveys were completed. Due to the method of email distribution, it was not possible to ascertain the number of potential participants who received the survey invitation but did not respond to it. However, it is known that the survey's website was viewed 1338 times (including completed and submitted survey visits).

### *The geography and demography of interprofessional education*

*Demographics.* Respondents represented 41 countries from WHO's six regions and various income-economies (see Table I). When classified according to the World Bank's Income Classification Scheme (World Bank, 2008), the majority of respondents worked in developed countries with high-income economies (91%), two-thirds were from Canada, the United Kingdom (UK) and the United States of America (USA). Developing country respondents (9%) included low-income economies in South Asia and sub-Saharan Africa (3%), lower-middle economies of China and the Middle East (4%), and upper-middle-income economies of Mexico, Poland and South Africa (2%).

The conventional health professions were represented in the study sample, with over two-thirds (67%) of respondents identifying themselves as nurses/midwives, pharmacists, physiotherapists or doctors/physicians. Other allied health professionals (occupational therapists, speech pathologists, social workers, psychologists, dieticians, and oral hygienists)

Table I. The 41 countries represented by the respondents (N = 396).

|                               |               |                               |
|-------------------------------|---------------|-------------------------------|
| Armenia (1)*                  | Greece (2)    | Pakistan (2)*                 |
| Australia (26)                | Guinea (1)*   | Papua New Guinea (1)*         |
| Bahamas (2)                   | India (5)*    | Poland (2)*                   |
| Belgium (1)                   | Iran (2)*     | Portugal (18)                 |
| Canada (98)                   | Iraq (1)*     | Saudi Arabia (1)              |
| Cape Verde (1)*               | Ireland (23)  | Singapore (1)                 |
| Central African Republic (1)* | Japan (2)     | South Africa (1)*             |
| China (3)*                    | Jordan (2)    | Sweden (26)                   |
| Croatia (2)                   | Malaysia (1)* | Thailand (2)*                 |
| Denmark (7)                   | Malta (2)     | United Arab Emirates (1)      |
| Djibouti (1)*                 | Mexico (2)*   | United Kingdom (72)           |
| Egypt (1)*                    | Moldova (1)*  | United States of America (66) |
| Germany (4)                   | Nepal (1)*    | Uruguay (1)*                  |
| Ghana (1)*                    | Norway (6)    |                               |

The digit beside each country corresponds with the number of individuals from that country who participated. The asterisk indicates developing country status as per the World Bank's Income Classification Scheme (World Bank, 2008).

comprised 17% of the sample. Those who reported "other" backgrounds (16%) came from academia, education, research or public health. The respondents worked as university educators, professors or instructors (50%), health workers (14%), researchers (12%) and administrators/managers (11%). Respondents who answered to an "other" position (8%) were primarily employed as clinical educators and education managers/coordinators. The majority of respondents (78%) were over 41 years, with a median age range of 41–50 years and modal age of over 51 years. Finally, there were more female (78%) than male participants.

*Respondents' experiences with interprofessional education.* Participants reported moderate personal experience with IPE teaching with most claiming less than 5 years (36%) or 5–10 years personal experience (25%) and almost a quarter of educators having more than 10 years experience (24%). Only 15% had no experience with facilitating IPE. In contrast, the respondents themselves had experienced generally little (29%) or no IPE (61%) when they were students, with only 10% having had considerable experience as students themselves.

*Professions involved in interprofessional education.* The professions of the IPE educators were closely linked with the professions of students taught. A range of health practitioners assisted with the teaching of students (see Figure 1). Allied health practitioners, nurses/midwives, doctors/physicians, and social workers constituted the majority of health professionals providing IPE experiences for students. Respondents reported that students they taught represented a broad range of disciplines, including allied health [physiotherapists, occupational therapists speech pathologists and audiologists] nursing/midwifery, medicine and social work (see Figure 1). "Other" students included those from imaging and radiotherapy, biomedical sciences, and operating department practice.

#### *Delivery, assessment and evaluation of interprofessional education*

*Types of interprofessional education.* Respondents' students predominantly experienced IPE through the use of lectures/presentations by faculty experts (15%), small group discussions with fellow students (14%), working as part of a team to care for patients in a hospital setting (13%), and working with other students to discuss and resolve prepared written cases

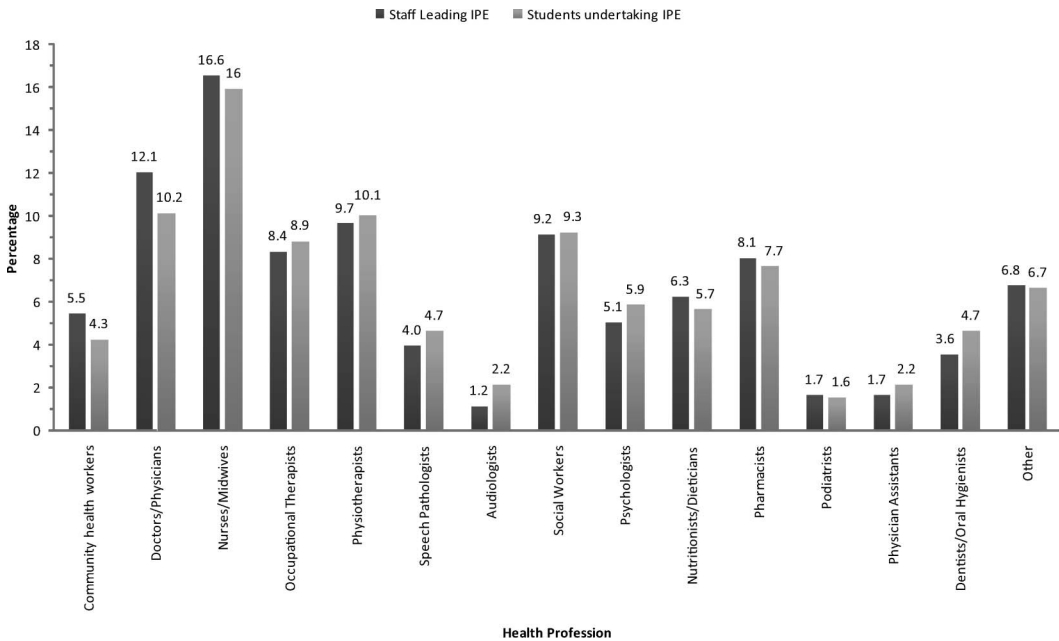


Figure 1. Staff leading interprofessional education and students undertaking it ( $N = 396$ ).

(12%). Workforce training as an apprentice under the direction of a practitioner (11%), working as part of a team to care for people in the community (10%), and working with simulated patients (9%) were also means of providing IPE.

*Duration, nature and timing of interprofessional education.* Three quarters of respondents (78%) indicated that their students received less than 6 months of IPE learning while substantially fewer respondents reported 6–12 months (10%) and more than a year (12%). The most frequently reported length of time spent learning about IPE was 1–4 weeks (28%).

In most educational institutions, IPE was a compulsory component of students' training. These activities were mandatory for all (38%) or some students (24%), but were sometimes voluntary or optional (22%). Many respondents were unsure (16%) as to the nature of IPE requirements. The timing of engagement in IPE was relatively evenly distributed throughout students' learning programmes. Approximately 84% of interprofessional learning occurred in undergraduate years as opposed to post-qualification years (16%).

*Assessment of student learning.* Only two-thirds of respondents (66%) reported that their students knew the objectives associated with their IPE learning activities, while the remainder (34%) did not. Of the 266 respondents who reported students' familiarity with IPE objectives, a little over half (55%) maintained that students were assessed and required to pass these objectives. Hence, overall, 37% of respondents reported that IPE was assessed, while 63% did not. Learning objectives were measured using a variety of assessment tasks, with group activities/assignments (46%) being the most common. Individual assignments (22%), written tests (12%), and oral questions (8%) or other means of formal assessment (14%) were also utilised. An analysis of assessment tasks stratified according to developed/developing country status revealed some similarities such as group activities/assignments

being the most common form of assessment for students in both developed (47%) and developing (37%) countries.

*Staff training in interprofessional education teaching.* Based on a qualitative analysis of responses to this open-ended question, it was clear that university staff members were the primary providers of staff training for IPE facilitators (25%), followed by IPE committees and teaching teams (19%), and therapists/health professionals (12%). In many cases there was no provider or they were self-taught.

Approximately one-third of respondents (31%) provided training to staff undertaking IPE, while 68.7% did not. This staff training on the instruction of IPE was primarily “one-off non-specific” (24%), rather than ongoing training (11%), and was most likely to be less than one day (13%) or between 1–7 days in duration (32%).

*Evaluation of interprofessional education.* Almost one third of respondents did not formally evaluate IPE. Of those who did (70%), a range of methods were utilized. Student surveys were the most popular evaluation tool and were the overwhelming preference of respondents from developed countries. Additional methods reported include educator questionnaires, evidence of better teamwork after graduation, student examination results, improvements in patient care and patient surveys. The “other” category involved observations, focus groups, research projects, reflective journals, and client and staff feedback. These results are illustrated in Figure 2 for both developed and developing countries.

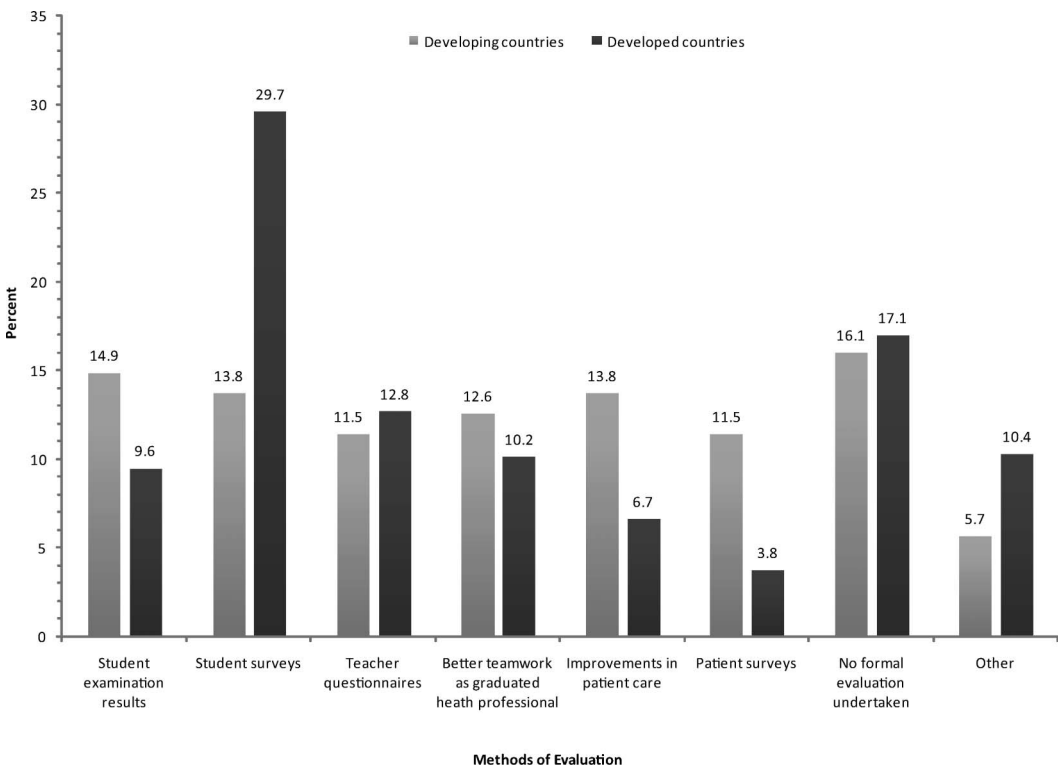


Figure 2. Methods of evaluating interprofessional education (n = 275).

### Perceived benefits of interprofessional education

**Teaching and learning benefits.** Respondents from developed and developing countries reported similar benefits of IPE (see Figure 3). The real-world experiences and insights provided by IPE were the most commonly reported benefits. Other perceived benefits included interprofessional consultation in programme development, information about the work of other professions, incorporation of multiple perspectives, knowledge of learning content of students from other professions, and benefits of discussion. Few respondents attested to the benefits of joint teaching of separate programmes, the joint scheduling of learning experiences, and concurrent interprofessional and uni-professional teaching.

**Practice and policy benefits.** Respondents reported a number of practice and policy benefits of IPE. These related to access to health care, health outcomes and quality of care for patients as well as staff workforce morale, practices and productivity. Analysis of the perceived health policy benefits of IPE revealed a number of similarities between developing and developed countries (see Figure 4). Similar proportions of respondents from both country categories described the benefits of improvements in workplace practices and better health outcomes and improved quality of care for clients/patients. Responses from developed and developing countries were also comparable for staff morale, patient safety, workplace productivity, staff retention, and health workforce recruitment. Differences emerged for the reporting of better access for patients to health care (9%/14%) and cost savings (5%/7%).

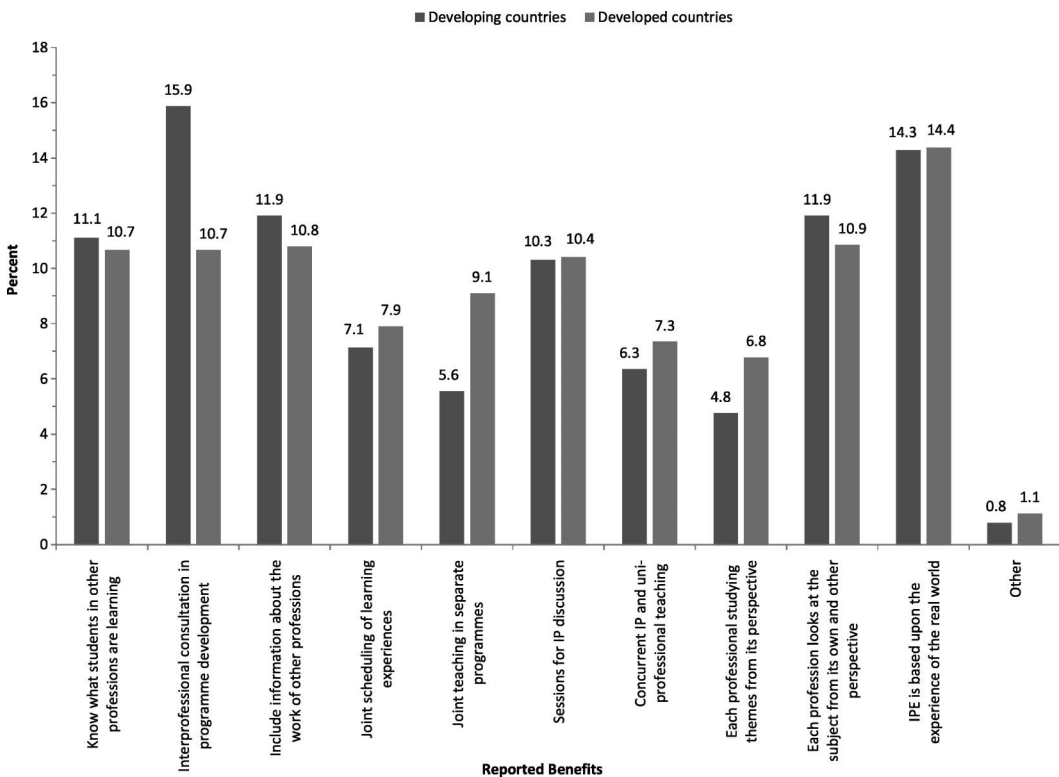


Figure 3. Teaching and learning benefits of interprofessional education that were personally observed by the respondents ( $N = 396$ ).

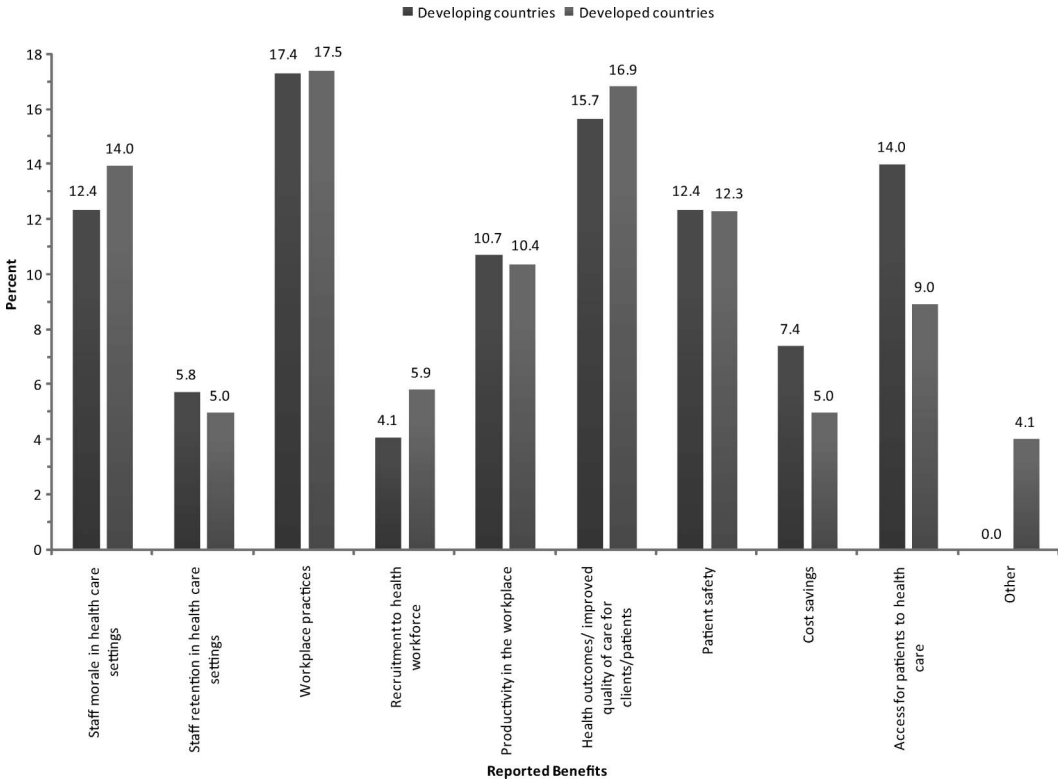


Figure 4. Health practice and policy benefits of interprofessional education that were personally observed by the respondents (N = 396).

**Discussion**

This environmental scan provides the first global data on *where* IPE is offered internationally, and it reveals that IPE is utilized to varying degrees across various income-economies. Although less than 10% of the sample, it was encouraging to achieve representation from developing countries. In terms of *how* IPE is offered, it is clear that a range of health professions are involved, with the greatest representation coming from nursing/midwifery, the allied health professions, doctors and social workers. The reason for a predominance of particular professions providing and engaging in IPE is likely related to the larger numbers of these professionals in the health workforce.

Within curricula, the findings indicate that IPE was often not compulsory which contradicts the first best practice highlighted in Table II and emphasized in the research literature. With respect to the second and third best practices in Table II, the scan revealed that learning objectives were often neither included nor assessed. This runs counter to the established need for explicit learning objectives that are linked to specific assessment tasks (Norton, 2009; Ramsden, 2003). This finding also seems to suggest that theoretical frameworks (such as adult learning theory or the contact hypothesis) are not used to underpin IPE – a concern that has been previously identified in the literature (Barr et al., 2005; Colyer, Helme, & Jones, 2005; Cooper, Carlisle, Gibbs, & Watkins, 2001; D’Eon, 2005). Theoretical frameworks guide how educators enact their teaching or facilitation roles and which teaching strategies they adopt (Clark, 2006).



Considering the fourth best practice in Table II, staff training for facilitators of IPE was provided by approximately one third of participants. Recent research suggests that compulsory facilitator training is critical prior to staff conducting IPE sessions (Hammick et al., 2007; Lindqvist, Freeman, Wright, & Watkin, 2008). Attention to group and teamwork processes are an important aspect of facilitator preparation (Hammick, Olckers, & Champion-Smith, 2009). A framework for IPE facilitator training has recently been developed and covers competencies in interprofessional facilitation, collaborative patient-centred and culturally inclusive and responsive practice (Banfield & Lackie, 2007; Banfield & Lackie, 2009). Recent research has further demonstrated a need for these programs to consider both the underpinnings and implications of interprofessionality and appropriate pedagogy (Anderson, Cox, & Thorpe, 2009).

The results of this study also indicated that a third of respondents did not formally evaluate IPE despite this being a recognized best practice. IPE is thought to better prepare students for working together after graduation (Parsell & Bligh, 1998); however, the most sustained criticism of this strategy is the dearth of rigorous evaluation leading to a lack of systematic evidence about its effectiveness (Zwarenstein, Reeves, & Perrier, 2004). The need for sound evaluations of IPE has been unequivocally emphasized (Barr et al., 2000; Barr et al., 2005; Freeth, Hammick, Koppel, Reeves, & Barr, 2002; Hammick, 2000; Reeves et al., 2008), yet a “know-do” gap remains between this recognized standard and real-world practice (see Table II).

This study also provided information on less established aspects of IPE delivery where a consensus has not yet been achieved, such as the time at which it is currently being introduced and the pedagogy underpinning its practice. These findings demonstrate that

Table II. Assessing “know-do” gaps between research evidence and real-world interprofessional education practices.

|   | Evidence-Based Best Practice  | Real-World IPE Practice   | X/✓ |
|---|---|---|-----|
| 1 | IPE should be a <i>mandatory</i> component of every health professional’s education                             | Only 38% reported that IPE was mandatory for all their students. Often it was optional (22%) or mandatory for only some students (24%). Many were unsure (16%). | X   |
| 2 | IPE should be offered based on <i>explicit learning outcomes</i> that are made clear to both staff and students | Only 66% reported that their students knew the objectives of IPE in which they engaged.   | X   |
| 3 | IPE should be <i>assessed</i> with respect to what students were intended to learn                              | Only 37% of participants reported that they assessed learning outcomes for IPE.   | X   |
| 4 | IPE should be offered by trained facilitators who have received <i>staff development</i> in this area           | Only 31% of respondents provided training to staff undertaking IPE.   | X   |
| 5 | IPE should be <i>evaluated</i> for both process and outcomes  | IPE was not always evaluated (30%).   | X   |

The five evidence-based best practices were drawn from WHO’s *Framework for Action on IPE and Collaborative Practice* (WHO, 2010a). Best practice #1 is also supported by the Institute of Medicine (2001), Hoffman & Harnish (2007) and Ho, Jarvis-Selinger, Borduas, Frank, Hall, Handfield-Jones et al. (2008); best practice #2 is also supported by Ramsden (2003), Freeth, Hammick, Reeves, Koppel, & Barr (2005), Norton (2009) and Thistlethwaite & Moran (2010); best practice #3 by Freeth et al. (2005) and Biggs & Tang (2007); best practice #4 by Hammick et al. (2007), Lindqvist et al. (2008) and Hammick et al. (2009); and best practice #5 is also supported by Barr et al. (2000), Hammick (2000), Freeth et al. (2002), Barr et al. (2005) and Reeves et al. (2008).

IPE was mostly offered to undergraduate or pre-licensure students. IPE experiences during students' clinical or practice placements were not often offered by respondents despite research suggesting this to be optimal (Finch, 2000; Gilbert, 2005; Leaviss, 2000; Reeves, 2000).

Finally, results from this global environmental scan also highlight some of the reasons *why* IPE is offered around the world. Respondents specifically provided their perceptions about various educational benefits to implementing IPE as well as those for health policy. Interestingly, the benefits described by those in developed and developing countries were very similar. It should be noted that these were self-reported benefits rather than being outcomes from rigorous evaluation (which was beyond the scope of this study). Many of these have been cited in the literature and by the World Health Organization (WHO, 2010a). Yet while there are many examples and recognized benefits of IPE internationally, it is clear that IPE has not yet been systematically implemented. WHO's *Framework for Action on IPE and Collaborative Practice* (2010a) provides direction for embedding IPE within national health systems and highlights case studies that show exemplary practice in both developed and developing countries. Networks such as the International Association for Interprofessional Education and Collaborative Practice (InterEd) provide a "collective and worldwide voice" for proponents of IPE which aim to support dialogue and exchange across the globe.<sup>2</sup>

The primary limitations of this study are that it was conducted exclusively in English, relied upon self-reporting, and used an online survey with email invitations. Although these limitations were the consequence of resource and time constraints, every effort was made to mitigate their impact. This survey extended beyond the existing regional networks of IPE leaders and utilized WHO's vast network of district and regional offices, global collaborating centres and country focal points to reach individuals in up to 193 countries where IPE may be offered. However, as a result of these limitations, the findings are not entirely representative of global IPE practices. They do not include information from non-English speakers and/or those who do not have access to the internet. Our relatively low response rate in developing countries also prevented statistical comparisons across income-economies which may have been informative.

As this was the first global environmental scan of IPE practices, there are many unanswered questions and areas for improvement. Future global scans should attempt to reach non-English speaking participants and those who do not have internet access, with a more detailed focus on practices in developing countries. Finally, as the evidence-base for IPE expands, efforts should be made to measure the "know-do" gap by comparing research evidence to real-world practices.

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**Declaration of interest:** The opinions expressed in this paper are those of the individual authors and do not necessarily represent the views of the World Health Organization.

## Notes

1. The following international organizations, their associated membership and email distribution lists also facilitated contact with prospective participants: (1) Association for Prevention Teaching and Research; (2) Australasian Interprofessional Practice and Education Network; (3) Canadian Interprofessional Health Collaborative; (4) European IPE Network; (5) Global Network of WHO Collaborating Centres for Nursing and Midwifery Development; (6) International Association for IPE and Collaborative Practice; (7) International Pharmaceutical Federation; (8) *Journal of Interprofessional Care*; (9) Linköping University, Sweden; (10) Nordic Interprofessional Network; (11) Secretariat of the All Together Better Health IV Conference (2–5 June 2008, Karolinska Institutet & Linköping University, Sweden); (12) Secretariat of the North American IPE Conference (24–26 October, 2007, University of Minnesota, USA); (13) The Network: Towards Unity for Health; (14) UK Centre for the Advancement of Interprofessional Education; (15) UK Council of Deans of Health; and (16) UK Higher Education Academy.
2. See <http://www.interedhealth.org>.

## References

- Anderson, E. S., Cox, D., & Thorpe, L. N. (2009). Preparation of educators involved in interprofessional education. *Journal of Interprofessional Care*, 23(1), 81–94.
- Banfield, V., & Lackie, K. (2007). *Interprofessional competencies: Competency document*. Unpublished manuscript, Registered Nurses Professional Development Centre & Nova Scotia Department of Health, Halifax, Nova Scotia.
- Banfield, V. & Lackie, K. (2009). Performance-based competencies for culturally responsive interprofessional collaborative practice. *Journal of Interprofessional Care*, 23(6), 611–620.
- Barr, H., Freeth, D., Hammick, M., Koppel, I., & Reeves, S. (2000). *Evaluations of interprofessional education: A United Kingdom review for health and social care*. London, UK: British Education Research Association and Centre for the Advancement of Interprofessional Education.
- Barr, H., Koppel, I., Reeves, S., Hammick, M., & Freeth, D. (2005). *Effective interprofessional education: Argument, assumption and evidence*. Oxford, UK: Blackwell Publishing.
- Biggs, J., & Tang, C. (2007). *Teaching for quality learning at university*. Maidenhead, UK: Society for Research into Higher Education and Open University Press.
- Centre for the Advancement of Interprofessional Education(CAIPe), United Kingdom, 2002.
- Choo, C. W. (1999). The art of scanning the environment. *Bulletin of the American Society for Information Science and Technology*, 25(3), 21–24.
- Clark, P. (2006). What would a theory of interprofessional education look like? Some suggestions for developing a theoretical framework for teamwork training. *Journal of Interprofessional Care*, 20(6), 577–589.
- Cooper, H., Carlisle, C., Gibbs, T., & Watkins, C. (2001). Developing an evidence base for interdisciplinary learning: A systematic review. *Journal of Advanced Nursing*, 35(2), 228–237.
- Cooper, H., Braye, S., & Geyer, R. (2004). Complexity and interprofessional education. *Learning in Health and Social Care*, 3, 179–189.
- Colyer, H., Helme, M., Jones, I., Adams, A., Barr, H., Carpenter, J., & Wilby, P. (2005). *The theory-practice relationship in interprofessional education*. London, UK: Higher Education Academy Health Sciences and Practice. Retrieved 18 May 2006 from: <http://www.health.heacademy.ac.uk/publications/occasionalpaper>.

- Coster, S., Norman, I., Murrells, T., Kitchen, S., Meerabeau, E., Sooboodoo, E., & d'Avray, L. (2008). Interprofessional attitudes amongst undergraduate students in the health professions: A longitudinal questionnaire survey. *International Journal of Nursing Studies*, 45, 1667–1681.
- D'Eon, M. (2005). A blueprint for interprofessional learning. *Journal of Interprofessional Care*, 19(Suppl. 1), 49–59.
- Finch, J. (2000). Interprofessional education and teamworking: A view from the education providers. *British Medical Journal*, 321(7269), 1138–1140.
- Freeth, D., Hammick, M., Koppel, I., Reeves, S., & Barr, H. (2002). *A critical review of evaluations of interprofessional education*. London, UK: Learning and Teaching Support Network: Health Sciences and Practice.
- Freeth, D., Hammick, M., Reeves, S., Koppel, I., & Barr, H. (2005). *Effective interprofessional education: Development, delivery and evaluation*. Oxford, UK: Blackwell Publishing.
- Gilbert, J. H. V. (2005). Interprofessional learning and higher education structural barriers. *Journal of Interprofessional Care*, 19(Suppl. 1), 87–106.
- Hammick, M. (2000). Interprofessional education: Evidence from the past to guide the future. *Medical Teacher*, 22(5), 461–467.
- Hammick, M., Freeth, D., Koppel, I., Reeves, S., & Barr, H. (2007). A best evidence systematic review of interprofessional education. *Medical Teacher*, 29(8), 735–751.
- Hammick, M., Olckers, L., & Campion-Smith, C. (2009). Learning in interprofessional teams: AMEE Guide no 38. *Medical Teacher*, 31(1), 1–12.
- Ho, K., Jarvis-Selinger, S., Borduas, F., Frank, B., Hall, P., Handfield-Jones, R. et al. (2008). Making interprofessional education work: The strategic roles of the academy. *Academic Medicine*, 83(10), 934–940.
- Hoffman, S. J., & Harnish, D. (2007). The merit of mandatory interprofessional education for pre-health professional students. *Medical Teacher*, 29(8), e235–e242.
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academies Press.
- Leaviss, J. (2000). Exploring the perceived effect of an undergraduate multiprofessional educational intervention. *Medical Education*, 34, 483–486.
- Lindqvist, S., Freeman, S., Wright, A., & Watkin, A. (2008). Exploring models for training and supporting educational facilitators to deliver effective IPE within higher education. *Proceedings of All Together for Better Health IV Conference 2–5 June 2008, Stockholm Sweden*, p. 81.
- Mickan, S., Hoffman, S. J., & Nasmith, L., on behalf of the WHO Study Group on Interprofessional Education and Collaborative Practice (2010). Collaborative practice in a global health context: An analysis of ten case studies from developed and developing countries. *Journal of Interprofessional Care*, 24.
- Morrison, J. L. (1992). Environmental scanning. In M. A. Whitely, J. D. Porter, & R. H. Fenske (Eds.). *A primer for new institutional researchers* (pp. 86–99). Tallahassee, FL: Association for Institutional Research.
- Norton, L. (2009). Assessing student learning. In H. Fry, S. Ketteridge, & S. Marshall (Eds.), *A handbook for teaching and learning in higher education: Enhancing academic practice* (3rd edn). New York, NY: Routledge.
- Oandasan, I., D'Amour, D., Zwarenstein, M., Barker, K., Purden, M., Beaulieu, M., & Tregunno, D. (2004). *Interdisciplinary education for collaborative, patient-centred practice*. Ottawa, CA: Health Canada.
- Parsell, G., & Bligh, J. (1998). Interprofessional learning. *Postgraduate Medicine Journal* 74, 89–95.
- Patton, M. (2002). *Qualitative research and evaluation methods* (3rd edn). Thousand Oaks, CA: Sage Publications.
- Ramsden, P. (2003). *Learning to teach in higher education* (2nd edn). New York, NY: RoutledgeFalmer.
- Reeves, S. (2000). Community-based interprofessional education for medical, nursing and dental students. *Health and Social Care in the Community*, 8, 269–276.
- Reeves, S. (2001). A systematic review of the effects of interprofessional education on staff involved in the care of adults with mental health problems. *Journal of Psychiatric Mental Health Nursing*, 8(6), 533–542.
- Reeves, S., Goldman, J., Sawatzky-Girling, B., & Burton, A. (2008). *Knowledge transfer and exchange in interprofessional education: Synthesizing the evidence to foster evidence-based decision-making*. Vancouver, CA: Canadian Interprofessional Health Collaborative.
- Reeves, S., Zwarenstein, M., Goldman, J., Barr, H., Freeth, D., Hammick, M., & Koppel, I. (2008). Interprofessional education: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, Issue 1.
- Thistlethwaite, J., & Moran, M. on behalf of the WHO Study Group on Interprofessional Education and Collaborative Practice (2010). Learning outcomes for interprofessional education: Literature review and synthesis. *Journal of Interprofessional Care*, 24, in press.
- World Bank. (2008). Data and statistics: Country classification. Retrieved 11 April 2008 from: <http://go.worldbank.org/K2CKM78CC0>.

- World Health Organization (1988). *Learning together to work together for health: Report of a WHO study group on multiprofessional education of health personnel: The team approach*. WHO Technical Report Series, No. 769. Geneva: World Health Organization.
- World Health Organization. (2010a). *Framework for action on interprofessional education and collaborative practice*. Geneva: World Health Organization.
- World Health Organization. (2010b). *Interprofessional education companion academic report*. Geneva: World Health Organization.
- Yan, J., Gilbert, J., & Hoffman, S. J. (2007). World Health Organization Study Group on Interprofessional Education and Collaborative Practice. *Journal of Interprofessional Care*, 21, 588–589.
- Zwarenstein, M., Reeves, S., & Perrier, L. (2004). Effectiveness of pre-licensure interdisciplinary education and post-licensure collaborative interventions. In I. Oandasan, D. D'Amour, M. Zwarenstein, K. Barker, M. Purden, M. Beaulieu et al. (Eds.), *Interdisciplinary education for collaborative, patient-centred practice: Research and findings report*. Ottawa, CA: Health Canada.