# Designing interprofessional modules for undergraduate healthcare learners

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**Background.** Interprofessional education aims to prepare learners to collaborate across specialties to provide high-quality healthcare. Internationally and nationally, the emerging need for integrated healthcare and education has been emphasised. The current education programme at the School of Health Care Sciences, University of Pretoria, South Africa primarily follows a uniprofessional approach.

**Objectives.** To describe the development of interprofessional modules over 4 years between the departments of Human Nutrition, Nursing Science, Occupational Therapy, Physiotherapy and Radiography.

**Methods.** The Knowledge-to-Action model guided the module development process. The planning phase comprised three steps: (*i*) problem identification (e.g. national and international policy focus on interprofessional education); (*ii*) review of existing knowledge (e.g. common learning outcomes); and (*iii*) adaptation of knowledge to the local context (e.g. syllabi and logistics).

**Results.** The development of interprofessional modules can be guided by the above-mentioned model to meet the needs of the faculty, departments, students and community and to contribute to interprofessional education, while overcoming the associated challenges.

**Conclusion.** Challenges included clashes in timetable schedules, financial constraints, administrative support, logistical issues and resistance to change. The designing and implementing of new modules were intense and time consuming, and required commitment. The development of the modules was an excellent example of interprofessional teamwork that needs to be transferred to the implementation and role modelling of interprofessional education.

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Globally, interprofessional education is lauded for its potential to improve the quality of healthcare and healthcare outcomes by teamwork between professionals from various health-related disciplines.[1] Furthermore, healthcare professionals need to meet the demands of the community and the country, which are caused by the burden of complicated disease.[2]

In South Africa (SA), the Department of Health is re-engineering primary healthcare, advocating a strategy of multidisciplinary teamwork in the community.[3] Healthcare professionals from different disciplines or professions work together to achieve a common goal within a multidisciplinary team, sharing some common roles, e.g. professionalism, leadership and advocacy.[4] Interprofessional education may address the lack of multidisciplinary teamwork in healthcare settings.

Traditionally, undergraduate education has focused on a professional specialty, with limited exposure to teamwork between healthcare professionals. Interprofessional education therefore aims to prepare learners to collaborate across specialties to provide high-quality healthcare.[5] The School of Health Care Sciences at the University of Pretoria, SA has traditionally followed a uniprofessional educational approach. The emerging need for interprofessional healthcare education was identified as a gap in the undergraduate education programme. As part of mandatory curriculum revision, the departments of Human Nutrition, Nursing Science, Occupational Therapy, Physiotherapy and Radiography identified the opportunity to incorporate interprofessional education as part of their programmes.

The School of Health Care Sciences identified two areas with potential for interprofessional education, i.e. research and integrated healthcare leadership. The objective of this article is to describe the approach and process followed in developing integrated healthcare leadership modules for interprofessional education that benefit the community and to achieve the educational outcomes of the five undergraduate healthcare programmes.

## Methods and Results

We used the Knowledge-to-Action cycle (Fig. 1) to guide and focus important tasks associated with designing and implementing the interprofessional module.[6] The Knowledge-to-Action framework incorporated information from individuals or teams from diverse contexts. This framework permitted focusing on local context and practice when adapting and implementing the interprofessional module; it fragmented the process from inception to implementation into manageable components and provided a structure and rationale for the activities involved in each phase of development.[6]

We report on Phase 1 of the Knowledge-to-Action model, which encompasses the planning phase (Fig. 1). We describe the process of identification

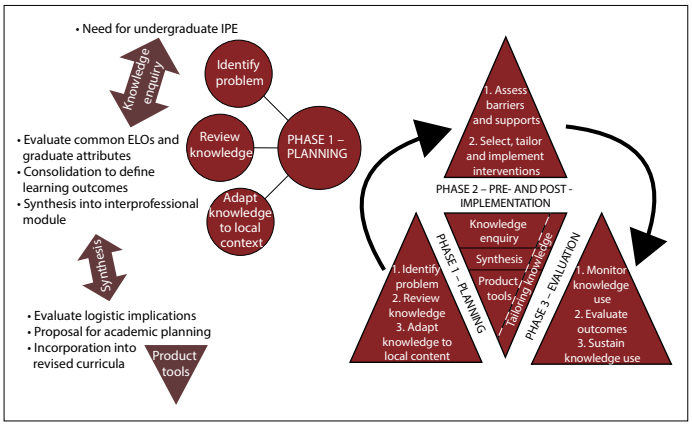


*Fig. 1. Knowledge-to-Action cycle. (IPE = interprofessional education; ELO = exit-level outcome.)*

of problems, review of existing knowledge and adaptation of the knowledge to the local context. The results of each phase are integrated in the description of each respective phase.

### Knowledge enquiry: Identify need

The need for interprofessional education was identified at the strategic planning session of the School of Health Care Sciences. We identified the opportunity to revise undergraduate curricula to meet important healthcare needs. The Teaching and Learning Committee was mandated to establish a task team(s) with representation from all five departments aimed at determining the potential of such modules and the way forward. Two task teams were established, focusing on research and integrated healthcare leadership. (The process followed for the research module will be reported in a separate article.)

### Synthesis: Review knowledge

The task team for integrated healthcare leadership used the Knowledge-to-Action model to guide the process. The initial team consisted of six members, with an additional member added soon after initiation (Table 1). The curricula and professional board regulations of the five professions were included in the knowledge review. Content was systematically unpacked to identify common exit-level outcomes and graduate attributes. The common exit-level outcomes were consolidated in table format to facilitate comparison of different professions. Potential learning outcomes for interprofessional modules were synthesised and captured.

### Product tools: Adapt knowledge to local context

The proposed interprofessional modules were presented to the School of Health Care Sciences' executive management and academic staff; discussions focused on content, and financial and logistical implications. A proposal outlining the implementation and incorporation of the interprofessional modules was drafted for submission to the Academic Advisory Committee and Faculty Board of the Faculty of Health Sciences. On approval of the submission, two sub-committees were established (Table 1) that were tasked with collating and designing learning material and learner guides for the respective interprofessional modules.

These modules are incorporated in the first 3 years of undergraduate training of healthcare professionals, with complementary profession-specific modules in alternate semesters (Table 2) and the final year of undergraduate training. The interprofessional healthcare leadership modules were first introduced in 2015 at 1st-year undergraduate level – to be offered over consecutive years.

## Discussion

Interprofessional education is aimed at creating an environment where future healthcare professionals can learn to collaborate, improving knowledge, skills and attitudes that will increase the wellbeing of patients and clients.[5] It can either commence early in professional training or after the unique aspects of professional training have been completed.[5] Often students complete their studies independently and shared learning only takes place during clinical exposure. Where education occurs in isolation, healthcare students may develop preconceived ideas and biases towards other professions before entering a multidisciplinary clinical environment.[7] It was therefore decided that the integrated healthcare leadership module be introduced from the 1st year to the 3rd year of study (Tables 1 and 2).

Interprofessional education promotes competent and responsible collaborative teamwork. Members need to understand ethics, roles and responsibilities of team members and communication.[8] Interprofessional education in the School of Health Care Sciences started with collaboration among the academic staff members from the five different professions, and this may build confidence in a personal and professional capacity. The task team experienced increased collaboration and collegiality, which is in line with the report from Pirrie *et al.*[9] that group work may lead to improved task achievement as a team and develop critical reflective practice. The impact will be monitored and reported on in due course.

As these modules were new in our school, we had to consider educational design before implementing a shared education programme. We included a needs assessment; clear measurable learning objectives; outcomes-based curriculum design; interactive teaching methods; and an evaluation typology. The task team had to consider individual context, environment and university systems. It also had to incorporate the requirements of professional bodies that uphold standards and unique cultures of the respective professions, while simultaneously promoting interprofessional health team concepts.[9]

During programme development we had to ensure that the interprofessional team was able to deal with resistance to implementation of the programme.[10] Our group included a front-line healthcare team, health professional educators, administrators, managers and policy-makers. Interprofessional education is challenging and a prepared team of educators is scarce.[2] Our strategic mission had to be all embracing and relied on educators committed to identifying learning opportunities. We faced logistical problems, including clashes in timetable schedules, financial constraints, and lack of administrative support and role models. We also experienced an inability to recognise the value of interprofessional education, resistance to change and an inflexible curriculum.[7,8]

We took the theory of constructive alignment into consideration to ensure that there is alignment between the outcomes, assessments and learning activities, as described by Biggs and Tang.[11] Authentic learning, as set out by Leppisaari *et al.*,[12] was also kept in mind, especially the emphasis on the need for a supportive collaborative construction of knowledge. In developing the interprofessional modules, the emphasis on integrated teams was ensured through group projects that are undertaken by students from different professional groups.

**Table 1. Process of development of interprofessional modules**

| Steps | Key activities | Reality of process |
|---|---|---|
| Knowledge enquiry: identify problem | Need for undergraduate IPE identified at strategic planning session of the SoHCS | The need to incorporate interprofessional modules (also referred to as 'shared modules') in undergraduate healthcare education and training was identified at a strategic planning session of the SoHCS. The Teaching and Learning Committee had to explore the potential of implementing interprofessional modules. Two streams were identified for possible interprofessional teaching and learning through discussion and debate of potential themes, and task teams were identified as follows:<br>(*i*) The task team for development of an integrated healthcare leadership module(s) consisted of members from all departments:<br>Department of Human Nutrition – 1 representative<br>Department of Nursing Science – 1 (chairperson) + 1 representative<br>Department of Occupational Therapy – 1 representative<br>Department of Physiotherapy – 1 representative<br>Department of Radiography – 2 representatives<br>(*ii*) A separate task team was identified for development of an interprofessional module(s) in research, which is not reported on in this article.<br>Choice of representatives for the task teams was informed by members' various roles within departments and expertise in specific subject areas or their roles in the curriculum review process of their department. |
| Synthesis: review knowledge | Evaluate common ELOs and graduate attributes | The task team met on scheduled dates.<br>First meeting: the ground rules and approach to be taken in developing the modules were determined. Decisions included that the shared modules should be presented as core modules in all academic years; there should be team teaching; and the focus should be on community-based healthcare.<br>Second meeting: members from the respective departments each compiled a list of ELOs and graduate attributes that might be of generic nature for each profession. The ELOs and graduate attributes were retrieved from the profession's regulatory bodies. Data were collated and presented in table format to make comparison between professions easier. |
| | Consolidate to define learning outcomes for IPE | Third and fourth meetings: the ELOs were discussed until consensus on the potential generic outcomes was reached and the profession-specific outcomes were eliminated. A decision was made to have profession-specific and interprofessional modules in alternate semesters for each year (Table 2).<br>Fifth and sixth meetings: possible study themes were informed by the generic profession outcomes, and attributes were identified for scaffolding over the different academic years. |
| Product tools: adapt knowledge to local context | Evaluate logistical implications | Seventh meeting: a layout of the modules over the consecutive academic years was presented to the executive committee and staff members of the SoHCS. Logistical implications were discussed, including human resources, timetable and venue implications, and administrative aspects.<br>Two sub-committees were established, with representation from all departments, to develop the details of the learning material for the 1st-year module for 2015 (10 lecturers) and 2nd-year module for 2016 (10 lecturers).<br>The third sub-committee was established in 2016 to develop details of the learning material for the 3rd year to be rolled out in 2017 (6 lecturers).<br>The initial task team members formed part of the sub-committees. |
| | Proposal for academic planning | Eighth meeting: refinement was made to proposed modules as suggested and decisions were made regarding the writing of the proposed regulation changes.<br>Two task team members wrote the proposed regulation changes and distributed the document to the other task team members and the executive committee.<br>The proposed regulation changes then followed the process according to internal policy: head of student administration, academic planning department, academic advisory committee, and faculty board and senate. |
| | Incorporation into revised curricula | Once the regulation changes had been approved, the respective departments incorporated the new modules as a core subject in their curricula. The first introduction of the modules took place in 2015 in the departments of Human Nutrition, Occupational Therapy and Physiotherapy. The departments of Nursing Science and Radiography will introduce them with the roll-out of their new curricula.<br>Monthly: 2-monthly meetings followed to discuss challenges, achievements and logistics.<br>An additional outcome was that the Department of Speech and Language Pathology joined the process in 2016, with their first group of students enrolling for the modules in 2017. |

IPE = interprofessional education; SoHCS = School of Health Care Sciences; ELO = exit-level outcome.

**Table 2. Locating the interprofessional modules within curricula**

| Year | Semester 1 | Semester 2 |
|---|---|---|
| 1st, NQF level 5 | Uniprofessional module: introduction to respective professions* | Interprofessional Health Leadership I: teamwork and communication in the community health setting (8 credits) |
| 2nd, NQF level 6 | Interprofessional Health Leadership II: principles of community health project development and health literacy (8 credits) | Uniprofessional module: complementary content determined by each discipline* |
| 3rd, NQF level 7 | Interprofessional Health Leadership III: community-based project (8 credits)<br>Interprofessional Healthcare Research III: proposal development (30 credits) | Uniprofessional module: complementary content determined by each discipline* |
| 4th, NQF level 8 | Uniprofessional module: content determined by each discipline*<br>Interprofessional Healthcare Research IV: research project (10 credits) | Uniprofessional module: content determined by each discipline* |

NQF = National Qualifications Framework.
*Credits differ for respective disciplines.

## Conclusion

Effective interprofessional healthcare may alleviate service duplication, minimise interventions and reduce healthcare costs. Educators need to work together to create opportunities for shared learning to improve interprofessional teamwork.

Designing and implementing new modules is intense and time consuming and requires commitment. Although various models of interprofessional education in the community have been reported, this article focuses on the application of a structured framework to describe the process followed in the development of interprofessional healthcare modules at undergraduate level. The process was an excellent example of interprofessional teamwork, which needs to be transferred to implementation and role modelling with regard to the designing of interprofessional education opportunities for the healthcare professions.

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1. Frenk J, Chen L, Bhutta ZA, et al. Health professionals for a new century: Transforming education to strengthen health systems in an interdependent world. Lancet 2010;376(9756):1923-1958. https://doi.org/10.1016/s0140-6736(10)61854-5
2. World Health Organization. Framework for Action on Interprofessional Education and Collaborative Practice. Geneva: WHO, 2010.
3. Pillay Y, Barron P. The implementation of primary healthcare re-engineering in South Africa. 2011. http://www.phasa.org.za/the-implementation-of-phc-re-engineering-in-south-africa/ (accessed 10 October 2017).
4. Rawson D. Models of interprofessional work: Likely theories and possibilities. In: Leathard A, ed. Going Interprofessional. Working Together for Health and Welfare. London: Routledge, 1994.
5. Reeves S, Perrier L, Goldman J, Freeth D, Zwarenstein M. Interprofessional education: Effects on professional practice and healthcare outcomes (update). Cochrane Database Syst Rev 2013;(3):CD002213. https://doi.org/10.1002/14651858.cd002213.pub3
6. Graham ID, Tetroe JM. The knowledge to action framework. In: Rycroft-Malone J, Bucknall T, eds. Models and Frameworks for Implementing Evidence-Based Practice: Linking Evidence to Action. West-Sussex: Wiley-Blackwell, 2010:207-221.
7. Dufrene C. Health care partnerships: A literature review of interdisciplinary education. J Nurs Educ 2012;51(4):212-216. https://doi.org/10.3928/01484834-20120224-01
8. Murphy SA. Interdisciplinary education in the addictions: A commentary on the current status. J Addict Nurs 2013;24(1):4-7. https://doi.org/10.1097/jan.0b013e31828767b7
9. Pirrie A, Wilson V, Harden RM, Elsegood J. Promoting cohesive practice in health care. AMEE Guide No. 12: Effective multiprofessional education – a three dimensional perspective. Multiprof Educ 2000:14-22.
10. Waggie F, Laattoe N. Interprofessional education and practice: Two community-based models. In: Tolken AS, ed. Service Learning Across the Globe: From Local to Transnational. Proceedings of the 5th International Symposium of Service-Learning, 20 - 22 November 2013, Stellenbosch, South Africa. https://www.sun.ac.za/english/ci/service-learning/issl (accessed 10 October 2017).
11. Biggs J, Tang C. Teaching for Quality Learning at University. What the Student Does. 3rd ed. London: Society for Research into Higher Education and Open University Press, 2007.
12. Leppisaari I, Herrington J, Vainio L, Im Y. Authentic e-learning in a multicultural context: Virtual benchmarking cases from five countries. J Interact Learn Res 2013;24(1):53-73.

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