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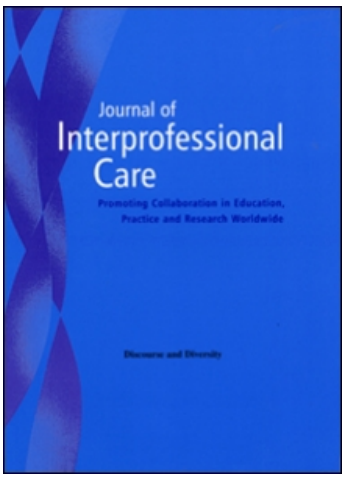

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The Leicester Model of Interprofessional Education: Developing, delivering and learning from student voices for 10 years

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The Leicester Model of Interprofessional Education: Developing, delivering and learning from student voices for 10 years

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Abstract
There are few sustained interprofessional learning opportunities in practice which engage the whole cohort of health and social care students across a region, the Leicester Model of Interprofessional Education is such an example. Since 1995 the Leicester Model has evolved to enable health and social care students to learn about the complexities of delivering multi-agency care in a range of health and social care settings. The learning environment is situated at the front line of service delivery. The education model takes students through a cycle of learning and applies a problem-solving, experiential learning approach which promotes deep learning. Follow-up data indicates that deep learning is achieved. This paper describes the original setting and presents the evaluation outcomes of the Leicester Model's ''Health in the Community'' course, which is delivered in city-centre communities, where inequalities in health are greatest. It traces a ten-year trajectory of interprofessional student group evaluations which helped shape this learning experience. Year-on-year positive student outcomes indicate the potential of the model to motivate and prepare future professionals for team working. Its sustainability has been achieved through ensuring the integration of education research in the development process, engagement of practitioners who value the student contributions to team working, placing patients central to the learning experience and establishing working partnerships between Higher Education Institutions, local health and social care organizations and the voluntary sector.

Keywords: *Interprofessional practice-based education, patient-centred model of learning, evaluation, disadvantage, community*

Background

Over the past ten years the UK public has been made more aware of whole systems failures in health and social care (Donaldson, 2000). Analyses of these failures highlight poor team working and particularly the quality of communication between front line practitioners (e.g., Lord Laming, 2003). A consequence of the government enquiries has been the re-design of health services to include collaboration with other statutory services, including social care

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and schools to provide multi-disciplinary care (Department for Education and Skills [DfES], 2003; Kennedy, 2001).

A decade ago there was very little integration between health care education and service delivery, with little evidence of interprofessional education in undergraduate curricula. Since then health care delivery, especially chronic disease management, has moved from acute hospitals into the community (Department of Health [DoH], 2001a, 2002, 2006) and government directives have advocated training that is more relevant to professional practice (DoH, 2000a, 2000b, 2001b: DfES, 2005).

Against this background we combined our expertise from academic and professional practice to develop a model of interprofessional education to address these issues. Our aim was to transpose health and social care education on team working and collaboration into working practice, enabling students to become reflective practitioners, learning about the complexities of service delivery from frontline workers, patients and each other's professions. As interprofessional education is being mainstreamed throughout the UK, this ten year research study contributes to a growing body of evidence-based education, as well as demonstrating the sustainability of the Leicester Model of Interprofessional Education (Lennox & Anderson, 2007).

The initial base for developing the Leicester Model was one of the first multi-disciplinary health and social care centres, Prince Philip House. Based in one of Leicester's most deprived areas, this community development project sought to redesign services around the needs of local people through one medical practice (Cole, 2002). The emergent partnership working highlighted residents' lack of understanding of professional roles and responsibilities, with professionals unable to fully perceive residents' needs (Anderson et al., 1996). Service delivery and design was radically changed to enable effective locally-led services which were truly interprofessional with health services working alongside social care, the police, education and the voluntary sector. The St Mathew's primary care team, which was recognized as an NHS ''Beacon Practice'', followed in the footsteps of the Marylebone Centre in its aspirations for patient-centred[1] cross-disciplinary working (National Health Service, 2000; Pietroni & Pietroni, 1995).

The Leicester Model was designed with medical students to analyse the complexities of delivering patient-centred care in an interprofessional setting where health inequalities were greatest. Its community setting reflected the need to address the imbalance in medical education between hospital and community care (Lennox & Petersen, 1998). The Model engages higher education institutions in partnerships with all aspects of service. The stages of the model enable a cycle of experiential and reflective learning (e.g., Figure 1). Patients' current health and social care problems propel students, teachers and practitioners into this learning cycle, resulting in analysis leading to a richer appreciation of the realities of team working and collaboration. Detailed research has enabled the Model to evolve to engage a wide range of health and social care students in any care setting where patients require team working and collaboration (Anderson et al., 2003, 2006). Patients continue to willingly participate to assist and form the focus of student learning. The process of recruitment considers ethical issues and is handled carefully and sensitively. There have been no recorded incidents of patients being harmed by participating.

This paper presents evidence of the progress and sustainability of the original two-day course set in inner city primary care. It is presented as a story unfolding over time supported with evaluation and outcomes. The course, now entitled ''Health in the Community'' has expanded from two professions to five and continues to expand, bringing together over 650 students annually (Figure 2). The course is now embedded within each professional curriculum as part of the regional interprofessional education strategy (Anderson & Knight, 2004).

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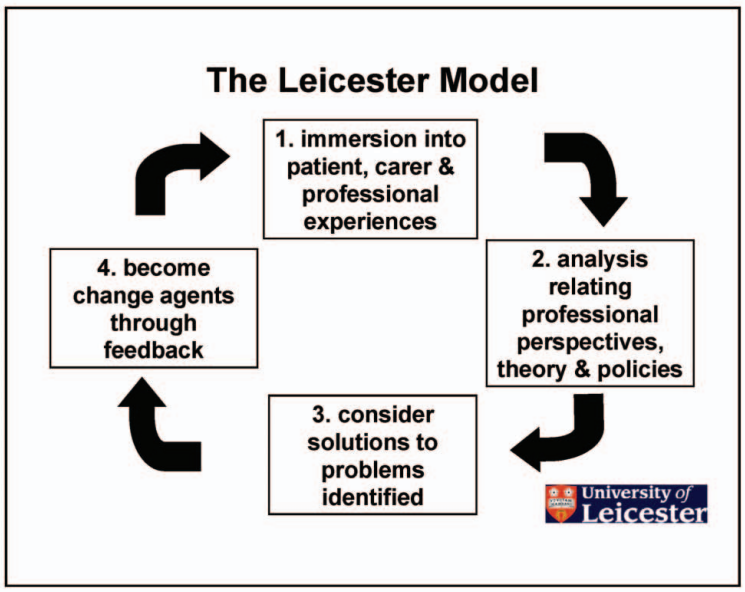
Students are grouped together in mixed professional cohorts of 24–32 per teaching venue, to work in small groups of 3-5.

They begin their cycle of learning by interviewing a patient in their home to appreciate the medical and social care issues impacting on their bio-psycho-social functioning.

Subsequently, they interview the health care practitioners involved with the patient to explore the strengths and deficiencies of the service and the adequacy of local statutory and non-statuary care provision (stage 1).



They interpret experiences, exploring successes and failures in care and service delivery, promoting new ideas to improve interprofessional care informed by theory and policy (stages 2–3). Finally they present back to the practitioners involved solutions to problems identified. Features of this model remain unique in their combination within a learning cycle

Figure 1. The Leicester Model Stages of Learning.

Preparation of Teaching Sites and Resources

1) Practitioners across a range of localities and academics jointly identify and prepare patients and their front line service providers to be interviewed by students.
2) Students are inducted into the locality through visits to local projects which are identified in the weeks prior to the course.
3) Teaching materials prepared and produced.

Course Delivery

1) Students attend a shared lecture to be briefed on content and expectations
2) Student mixed professional groups $n = 24$, are allocated to one of a possible 8 inner-city primary care sites. Students work from local health centres, or community rooms.
3) *Day One*: Students work in mixed professional groups of $n = 4$. Ground rules set, preparation for problem based learning, locality visits undertaken. Preparation for patient home interview supported throughout by tutors/facilitators.
4) *Day Two*: Students complete their case analysis by interviewing three or four front-line practitioners involved in caring for their patient. Reflections with tutor/facilitator. Short feedback presentation for the cohort and the local primary health care workforce. Opportunities for debate and discussion conclude the course. Students send written feedback to the primary health care teams involved in their case on their recommendations for enhancing care.

Post Course

1) Evaluations take place of all stakeholders including patients.
2) Students prepare an in-depth analysis of their patient case for their assessment.

For further details: Lennox & Anderson (2007).

Figure 2. Outline of the "Health in the Community" Course.

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Staged growth for the IPE programme

Stages One– Four. The "Health in the Community" course has developed in four stages, each underpinned by research (Figure 3). The outcome of *stage one* resulted in mainstreaming within the medical curriculum, aligned with theoretical learning on poverty and deprivation. In 1997 dialogue with the nursing and social work schools in another Higher Education Institution (HEI), led to pilots to include their students to learn with the medical students, *stage two*. From here we began a long-term process of multi-method data collection to consider the merits of this model for interprofessional, practice-based learning. Positive evaluations increased the range of student disciplines participating to include therapy and pharmacy students, *stage three*. During *stage four*, the model emerged and was adopted as a practice-based IPE event, within the region. This required expansion across a number of inner city primary care teaching sites. Today demand for places comes from audiology, clinical psychology, nursing and midwifery, medicine, pharmacy, speech and language therapy, and social work disciplines.

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The need for robust evaluation

Course evaluation was integral to the educational process from the outset. It was designed to ensure and maintain quality for the expanding student mix as the course evolved over ten

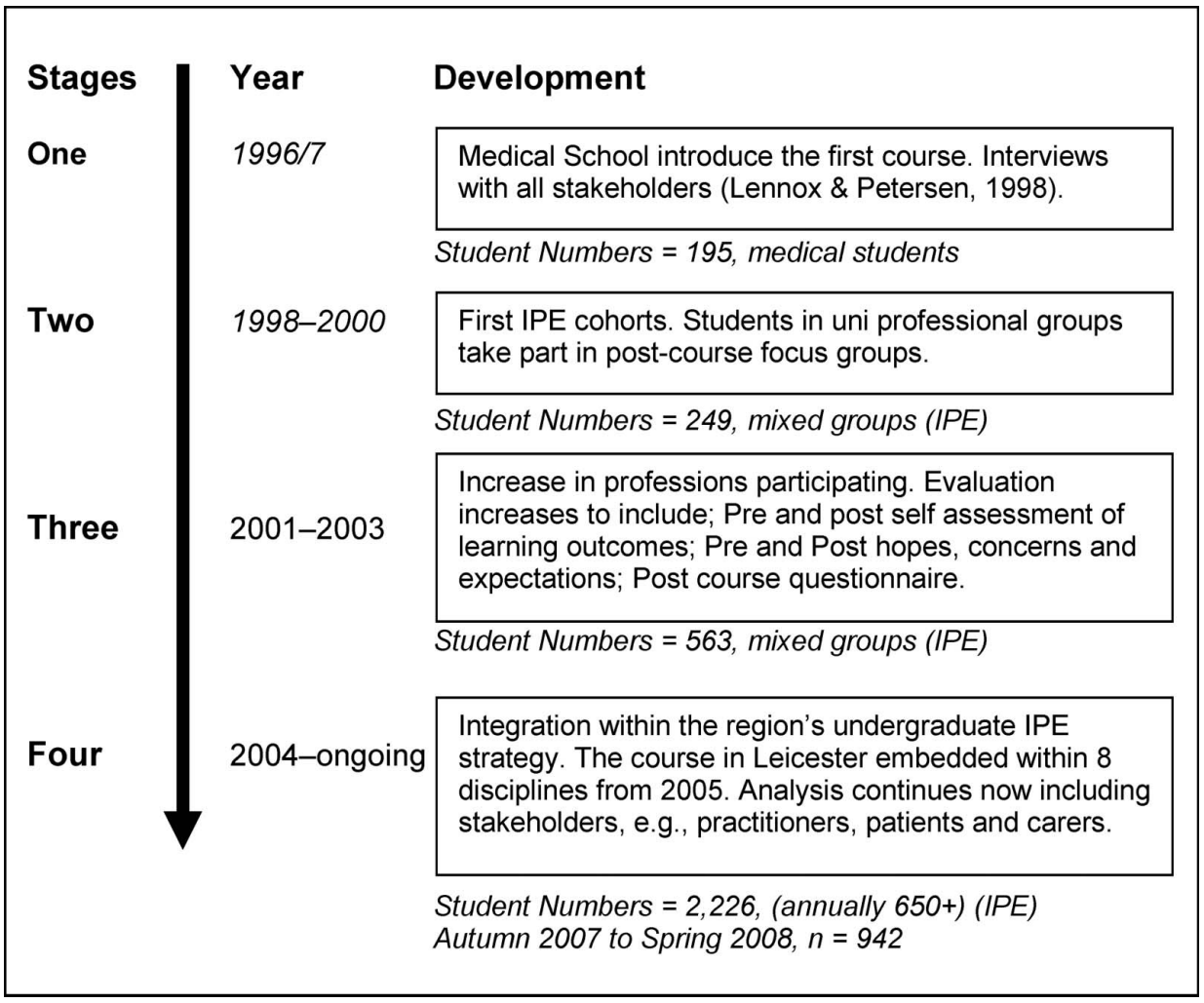

Figure 3. Stages of growth and development with evaluation methodology.

years, from 32 interprofessional student groups to currently over 650 annually, with a total of 942 in the academic year 2007/8.

Research methods

A range of quantitative and qualitative methods have been used to evaluate the course. The initial medical student courses developed instruments which were later adapted for interprofessional use and ensured a triangulated approach to obtaining data from the perspective of all stakeholders, (students, practice staff and patients) (Lennox & Petersen 1998).

Instruments

Focus Groups (1988–2000), were conducted by a research Health Visitor (DM). Students from each discipline were randomly selected and asked to attend within one month of completing the course. Students gave permission for the session to be audio recorded and were asked to state their chosen profession when contributing to discussions. The focus group prompt questions included, ''Was this valuable learning and if so why?''; ''Did you have any concerns, if so what?'' and ''Should students learn together in this way?''.

From 2000 a questionnaire was distributed at the end of each course. It had two parts:

(a) *Quantitative*: Students scored 23 paired statements on a five-point Likert scale addressing each aspect of the course including course preparation, organization, learning process, activities, tutor support and its interprofessional nature; aspects of their learning relating to meeting patients and agency representatives; and partnership working to tackle local health problems (Lennox & Anderson, 2007, p. 60).
(b) *Qualitative*: Students were also asked to comment on the best and worst aspects of the learning, learning with other health and social care professionals, the length and timing of the course in their curriculum. There was space for general comments.

The pre-and post course knowledge gain and attitude change instrument commenced from 2003. This consisted of matched quantitative data allowing students to rate their learning against the eight course learning outcomes using a 1–5 point Likert scale. In addition free text questions asked students to identify any pre-course hopes, concerns and expectations and reflect on whether they were met post-course.

Finally, from 2002 to 2004, final year medical students were issued short questionnaires to gather their recollections of the ''Health in the Community'' course which they had undertaken four years earlier.

Analysis

The quantitative data from student questionnaires was analysed using the statistical package SPSS. All qualitative data (free text student comments and transcribed focus group data) was typed into Microsoft word and analysed separately by two researchers for repeated themes within each professional group. Themes were identified, coded and sorted using the principles from stages one and two of grounded theory (Strauss & Corbin, 1998). The first stage (open coding) involved the identification of broad themes in which the data was taken apart and examined for differences and similarities. These first level categories were then

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broken down into further subcategories (stage two – axial coding). No theory was generated from the analyses. At each stage the dominant priority order of themes was recorded and evidence of material supporting these identified.

Results

Students affirm the course

Focus groups. Over the two years of stage one, three focus groups were held, consisting of 45 medical, 25 nursing and 20 social work students (range 6–15 students; 75–88% attendance).

All students ($n = 90$) valued the learning and all said they should learn together in this way, with one nursing student stating ''this is one of the best things I have done in my training'' (see additional quotations in Figure 4). Social work, nursing and medical students valued the same aspects of the course, these were; (i) learning interprofessionally to gain insights into the different professional orientations and perceptions; (ii) the importance of listening to and learning from users and carers in their own homes, and (iii) learning about the work of front line agencies who were interviewed and whose roles and responsibilities in primary care they now understood. Other highlighted themes included the complexity of team working in areas of disadvantage; the opportunity to perceive the roles and responsibilities of large locality diverse teams; and the challenges of collaborative practice in areas of poverty and disadvantage. There were concerns ($n = 20$) which related to the timing within their curriculum; feeling unconfident in group presentations; fear of working in a deprived environment; and for social work and nursing students, the medical phrases in the educational materials.

Stage two *post-course quantitative data* response rates have been high across all disciplines (range 43–92%) only once falling below 60%. The large numbers of high scores confirm the positive learning for students (Table I). For example the scores for question three ''appreciate the roles and responsibilities of team members''; question five, ''value the importance of inter-agency collaboration for tackling poverty and deprivation''; and question six, ''appreciate the training of each other's professions''. Patient interviews helped them understand the importance of multi-agency collaboration in patient management and the importance of patient-centred team working. Interprofessional learning was highly valued by all students, the majority indicating an intention to recommend the course to their colleagues. Over the years, three questions have scored negatively (more than 50% $1 + 2$ scores). These relate to pre-course preparation, feeling unclear about their role on the course and not looking forward to working interprofessionally. Comparing the scoring patterns across the different student disciplines, there were few significant differences between the student groups. Those identified relate to organization, preparation and teaching support materials (Table II).

Qualitative data affirmed student enjoyment with the experiential teaching methods and opportunities to meet and work alongside community teams while learning as a small interprofessional student team.

The pre-and post course self perception of knowledge gain and attitude change demonstrated gains for all disciplines. For example in 2004, social work, nursing and medical students increased their knowledge and changed attitudes for all eight learning outcomes (social work; range of scores, $Z = 2.265$, $p < 0.02$ to $Z = 3.334$, $p < 0.001$ Wilcoxon signed ranks test, 2-tailed), (nurses; range, $Z = 1.999$, $p < 0.046$ to $Z = 3.000$, $p < 0.003$, Wilcoxon signed ranks test, 2-tailed) and medical students (range, $Z = 9.841$, $p < 0.001$, to $Z = 10.319$, $p < 0.001$, Wilcoxon signed ranks test, 2 tailed). This pattern has

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Social work	Nursing	Medicine
Was it valuable learning?		
Interprofessional learning Working alongside other agencies… Good individual experience in terms of developing my interviewing and presentation skills. Learning about the training of other professions. *Learning about other agencies* Working alongside other agencies. Learning about the importance of communication...Learning about difficulties of multi-agency work in practice. *Meeting patients/service users* Meeting "real" people - patients/service users. *Different perspectives* Gave a good perspective however, the medics have not begun to work with real people with any great extent and thus unsure of their role – not so useful for trying to understand their perspective. It would be more useful from my perspective to meet medics further through their course…An opportunity to consider the relevance of differing perspectives. *Influencing policy* The opportunity to discuss issues with health managers.	*Interprofessional learning* Seeing problems from different backgrounds. What one prioritised as a student nurse was not what the medical students prioritised – eye opening… For me it was about understanding about other health professionals training and priorities. *Learning about other agencies* Getting to know services available for people. Seminars – interviews with the different agencies. I enjoyed working with the medical students and interviewing the agencies and meeting the patient. It will help my future practice.	*Meeting real people/patients* Having the opportunity to see families situations close up and many other situations through the eyes of our colleagues. Seeing patients in a more realistic setting i.e. in their homes and their lifestyles - social effects. *Interprofessional learning* Working with other students, emphasises the importance of communication. The importance of a whole range of professionals to be involved and to work together. It stops emphasising the barriers between medics and nurses - we are all young people and would get on better if we did this more I think. *Learning about other agencies* It was interesting to meet with different agencies that we may not have met before and to work with students from other professions. Learning about the agencies involved in health care and what they actually do…Real insight into community care and what needs to be done to help people who have problems…Getting an overall picture from everybody involved in the patients care. *Different perspectives* Showed and taught us how to work with different people with different outlooks… It was very interesting and a privilege to take part. *Challenges* Challenging current working method... It was food for thought and gave us an insight into multi-agency workings and their limitations and strengths. The best thing was getting out in the community...I am going to remember this - extend yourself beyond your job description.
Do you have any concerns?		
Timing of the module Presentations Medical dominance (Workbook)	Presentations Medical phrases (workbook) Seeing problems in the health service	Time constraints Timing of the module, i.e., exam time Working in a deprived area

Figure 4. Student Focus Group Themes (1998–2000). *Themes presented in order of dominance.*

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Table I. Questions on Interprofessional Education (% high scores) Spring Cohorts.

	2000			2001			2003			2004			2005			2006		
Questions	M*	N*	SW*	M	N	SW	M	N	SW	M	N	SW	M	N	SW	M	N	SW
1. **I was looking forward** to studying alongside other undergraduate health care professionals	17	33	12	55	35	12	12	16	25	15	33	25	21	18	18	70	52	70
2. The patient interview **helped me** to value the importance of patient centred care interprofessional care	88	83	81	89	84	82	68	91	58	60	79	89	74	63	78	74	71	67
3. The agency interviews **helped me** to appreciate the range and roles of professionals involved in primary care in my patient's case	64	67	72	65	67	72	76	64	90	81	80	87	73	80	82	84	61	74
4. My agency interviews **helped me** to appreciate the importance of multi-agency collaboration and communication in the management of my patient	64	83	73	65	83	73	74	73	80	75	57	87	74	68	78	72	66	59
5. The course helped me appreciate the importance of multi-agency working to tackle poverty and deprivation	67	78	55	67	78	56	87	50	95	71	66	89	74	63	78	91	79	83
6. The course **enabled me** to appreciate the training focus of other health care professionals	82	94	80	83	94	82	60	52	73	64	43	75	49	74	88	72	68	74
7. I **enjoyed** working alongside other students from health and social care professions	95	100	95	92	100	100	71	73	78	81	66	89	60	67	100	90	78	80
8. The course is worth recommending to other students	95	100	82	95	81	100	68	82	74	83	66	89	69	75	94	75	58	67

*M = Medical students; N = Nursing students (all branches); SW = Social Work students.

Table II. Significant differences between students.

Year	Details of differences
2000	Medical students felt less well prepared to work to their course objectives than nurses and social work students (Kruskal-Wallis Test = 14.2 df = 2, $p < 0.001$). Medical students did not find the resource pack as useful as nursing and social work students (Kruskal-Wallis Test = 7.5 df = 2, $p < 0.02$). Nursing students felt they had received insufficient instructions from their tutors (*Kruskal Wallis $p < 0.003$*) Medical students rated case study presentations and resource packs as unhelpful (*Kruskal Wallis* $p < 0.02$).
2001	Social work students were less anxious than nurses and medical students about working interprofessionally (Kruskal Wallis $p < 0.02$) social work 86% 4 + 5 scores, nurses 73% and medical students 48%.
2002	The uni professional introductory session did not prepare medical students as well as social work and nursing for the interprofessional course (Medics 37%, social work 67% and nursing 52% of high scores (Kruskal-Wallis Test = 13 df = 2, $p < 0.001$). Nurses felt the session on community understanding had not broadened their understanding of issues affecting health in an urban community (Medical 59%, nursing 44% and social work 67%) (Kruskal-Wallis Test = 9 df = 2, $p < 0.01$). Medical students felt they had not appreciated the training focus of the other professionals (medics 48%, nurses 68%, social work 83%) (Kruskal-Wallis Test = 15 df = 2, $p < 0.001$). Medical and nursing students felt the workbook was not appropriate (medic 54%, nursing 60 %, social work 83%) (Kruskal-Wallis Test = 13 df = 2, $p < 0.001$). Medical and nursing students found the resource box less helpful than the social work students (medics 43%, nursing 48%, social work 66%), (Kruskal-Wallis Test = 18.7 df = 2, $p < 0.000$).
2003/4	None
2005	S&LT (33.4%) students were not clear about their role on the course (Kruskal-Wallis = 12.068 df = 3, $p < 0.017$) compared with the other student groups.
2006	S&LT (64%) & Pharmacy students (63%), felt they had met with course leaders prior to the course compared with nursing (24%), SW (27%) and medicine (27%) (Kruskal-Wallis Test = 63.6 df = 4, $p < 0.000$). Nurses (25%) were unclear about their role on the course compared with SW (59%), medics (54%), S&LT (78%) and Pharmacy 70%, (Kruskal-Wallis Test = 40.4 df = 4, $p < 0.000$) Nurses (38%) and SWs (39%) felt the workbook was inappropriate compared with medics (62%), S&LT (66%) and Pharmacy students (61%) (Kruskal-Wallis Test = 21 df = 4, $p < 0.000$).

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been sustained and is clearly demonstrated by the first large cohort, in 2006 (stage four) where 543 students accessed the course (Table III).

Pre and post-course qualitative data highlighted that students' hopes and expectations were met, concerns were overcome with learning seen as vital to their future practice (Figure 5).

Finally, further affirmation of the benefits came from the final year medical students' recollections of the course, undertaken four years earlier. Questionnaires returned (response rate 40–55%, $n = 106$) revealed that 63% of these students still remembered the name of their patient case study and the main learning relating to this person.

Challenges in course expansion

How these were overcome. Early evaluations identified the need for caution relating to the following themes:

- student preparation for interactive interprofessional learning,
- student preparation for working in areas of poverty,

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Table III. Comparisons of students perceived learning Spring 2006 ($n = 543$).

Question	Medical Mean Pre	Medical Mean Post	Medical Z significance	Nursing Mean Pre	Nursing Mean Post	Nursing Z significance	Social work Mean Pre	Social work Mean Post	Social work Z significance	Pharmacy Mean Pre	Pharmacy Mean Post	Pharmacy Z significance	S&LT Mean Pre	S&LT Mean Post	S&LT Z significance
My ability to apply basic sociological context and theory relevant to interprofessional practice	2.6	3.6	$Z = 5.202$, $p < 0.000$	2.7	3.4	$Z = 6.639$, $p < 0.000$	3.3	3.7	$Z = 3.591$, $p < 0.000$	3.0	3.63	$Z = 5.726$, $p < 0.000$	2.6	3.4	$Z = 4.262$, $p < 0.000$
My ability to describe the impact of economic, practical and environmental factors, causation factors and service utilization	2.5	3.64	$Z = 4.742$, $p < 0.000$	2.6	3.47	$Z = 6.534$, $p < 0.000$	2.8	3.6	$Z = 4.259$, $p < 0.000$	2.9	3.6	$Z = 6.015$, $p < 0.000$	2.3	3.6	$Z = 4.806$, $p < 0.000$
My ability to critique a model of interdisciplinary health and social care directed at tackling inequalities in health	2.4	3.5	$Z = 4.628$, $p < 0.000$	2.6	3.4	$Z = 6.636$, $p < 0.000$	2.8	3.6	$Z = 4.344$, $p < 0.000$	2.7	3.5	$Z = 6.310$, $p < 0.000$	25	3.6	$Z = 4.396$, $p < 0.000$
My ability to analyse the quality and impact of service provision in the community	2.7	3.8	$Z = 4.761$, $p < 0.000$	3.0	3.6	$Z = 6.184$, $p < 0.000$	3.1	3.97	$Z = 4.109$, $p < 0.000$	3.0	3.78	$Z = 5.631$, $p < 0.000$	2.8	3.8	$Z = 4.193$, $p < 0.000$
My ability to describe the range and roles of professionals working to meet the health and social care needs of the community	2.9	3.6	$Z = 3.707$, $p < 0.000$	3.0	3.7	$Z = 5.800$, $p < 0.000$	3.1	3.8	$Z = 4.353$, $p < 0.000$	3.0	3.8	$Z = 6.034$, $p < 0.000$	3.2	4.0	$Z = 3.782$, $p < 0.000$
My ability to analyse the central role of the patient/service user in interprofessional working	2.9	3.86	$Z = 4.690$, $p < 0.000$	2.9	3.7	$Z = 6.035$, $p < 0.000$	3.3	4.0	$Z = 4.274$, $p < 0.000$	2.8	3.76	$Z = 6.485$, $p < 0.000$	3.0	4.0	$Z = 3.676$, $p < 0.000$
My ability to analyse the importance of good team working relationships which draw effectively on the skills/roles of different professionals to meet patient/service user needs	3.5	4.0	$Z = 3.945$, $p < 0.000$	3.3	3.9	$Z = 5.401$, $p < 0.000$	3.7	4.4	$Z = 4.242$, $p < 0.000$	3.4	4.0	$Z = 5.507$, $p < 0.000$	3.7	4.2	$Z = 2.648$, $p < 0.008$
My ability to assess the importance of effective communication within multi-disciplinary teams to ensure productive joint working	3.5	4.0	$Z = 3.026$, $p < 0.000$	3.5	3.82	$Z = 4.264$, $p < 0.000$	3.6	4.3	$Z = 4.210$, $p < 0.000$	3.3	3.8	$Z = 5.659$, $p < 0.000$	3.7	4.4	$Z = 3.709$, $p < 0.000$

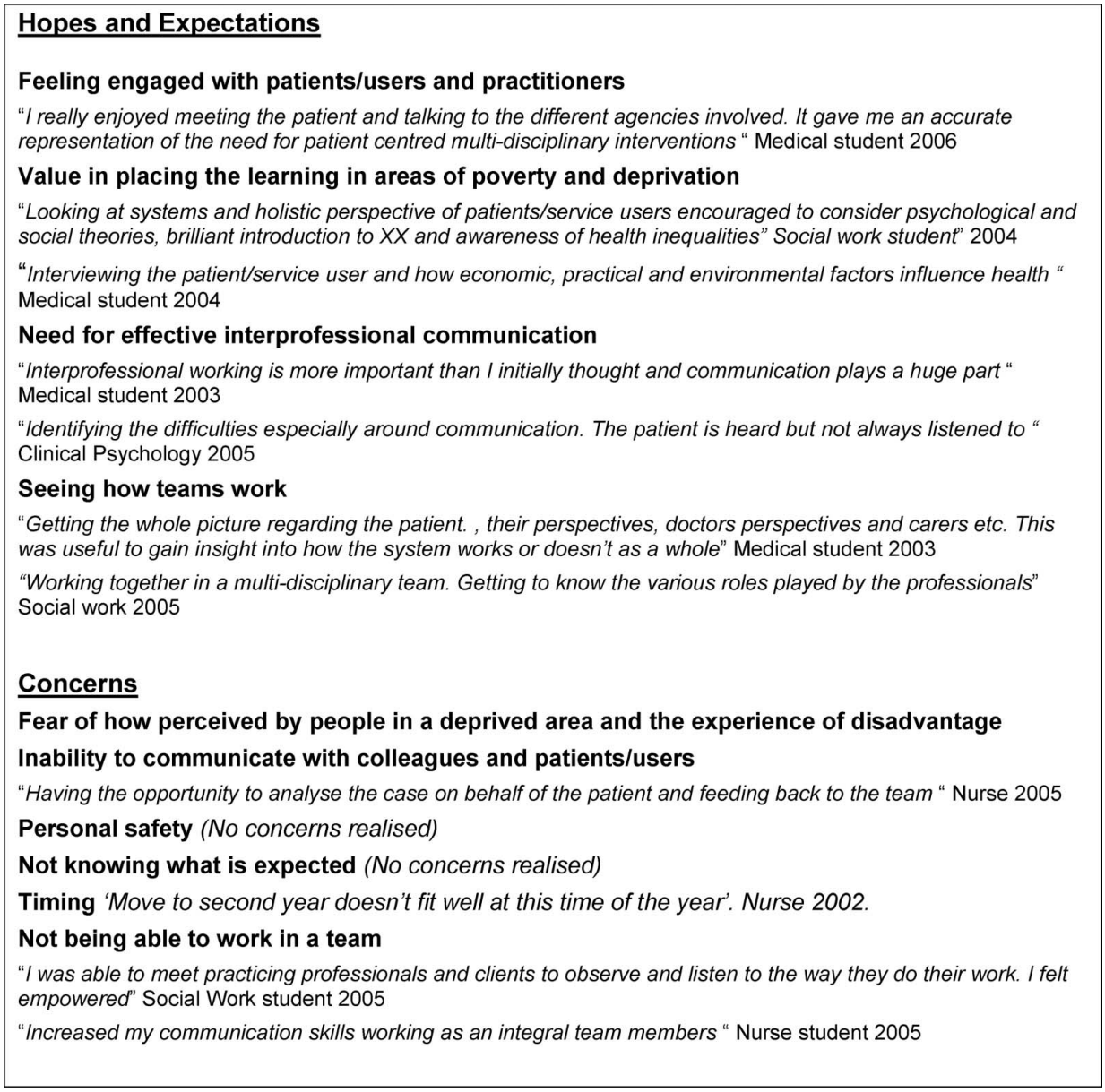

Figure 5. Summary of Student Themes: hopes concerns and expectations. Themes are presented in bold. All student free text comments from the pre and post course questionnaire.

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- timing of the learning within individual curriculum,
- student demand resulting in under capacity for placements,
- student concern for medical dominance of phraseology in the patient/user group and written materials.

These outcomes were addressed through the formation of an interprofessional steering group from 1998, consisting of academic staff from each discipline and representation from health and social care statutory bodies. This group received and acted on the evaluations. Patients and carers joined the steering group in 2003.

Student concerns about unpreparedness, unfamiliar teaching. First, IPE became embedded in all curricula in 2005 with the result that students were inducted into the learning environment

and teaching methods from the outset of their course. The impact of this was immediately evident in 2006/7 where no negative scores for these issues were recorded for any student group. For example the Speech and Language Therapy students (S&LT) felt unprepared in 2005 (16% positive scores) but not in 2006 (81% positive scores) and similarly for Pharmacy students (26% positive scores in 2005 to 74% in 2006). Secondly, sharing the evaluation data has ensured that these student messages have reached lecturers within each discipline. As a result they now ensure adequate preparation prior to the course. Thirdly, all course facilitators now attend regular training events and can align the interprofessional learning within their wider professional curricula. They are offered opportunities to become more familiar with skills for facilitation and the use of interactive learning methods (Anderson et al., 2009).

The fear of working in areas of poverty and deprivation was addressed by reminding students in their pre-course preparation that they would be working in small groups with tutor support and at no time would be expected to be alone. They are all prepared on safe conduct and behaviour using professional advice given to locality practitioners, including safe transport to and from the venue. Alarms were purchased for one student member of the group to carry. An additional safe conduct and advice section was included in the workbook.

The *timing* within the curriculum, when students accessed the course, proved to be a significant problem throughout the course evolution. In 2002 nurses attended the course at the end of their training and scored significantly differently on appreciation of needs of inner city team working, as they had been placed in these inner city localities prior to the course (Table II and Figure 4). In 2005 a judgment of the curriculum planners led to clinical psychology students attending the course within six months of commencing their curriculum. Their evaluations produced the lowest scores for any group (Table IV). A subsequent focus group evaluation highlighted there was no unwillingness to take part in the course but a desire to access the learning later in their training. This experience re-affirmed the course as a mid-training interprofessional practice-based event. It is now established as the first practice-based IPE event. Early pilots also identified timing in the academic year as a problem. The course had initially only run during one calendar month. Gaining additional practices enabled the course to run from October through to May offering more flexibility from 2002.

Demand for places has posed challenges for course *growth*. Work has been on-going over the ten years to prepare and develop new practice settings for increasing student numbers. The course began with one primary health care team and has expanded to ten sites. Although other sites were willing, growing capacity of tutors to support them has been challenging because insufficient academic and practice educators were allotted time for IPE. Support from clinical practitioners under ever increasing workloads has been an added problem. Steering group members have addressed the growth challenges through raising the profile of the course locally. They have engaged relevant partners and managers to ensure on-going access to front-line staff and to patients who are willing to participate in the programme. The group meets annually with primary health care team representatives to address any issues or concerns.

From the outset, both nurses and social work students found some of the terminology in the educational materials to be *medically phrased*, for example the specialized use of the phrases ''management plan'' and ''history taking''. Learning materials have been rewritten using terminology appropriate for all professional groups and this is reflected in all preparatory lecturers and by the facilitators working with each small student cohort.

The steering group continues to tackle obstacles to ensure sustainability and quality learning relevant to each professional discipline. Pooling budgets has ensured on-going

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Table IV. Comparisons of Perceived Knowledge Gain – Autumn 2005 ($N = 129$).

Question	Medical Z significance Mean (standard deviation)		Social Work Z significance Mean (standard deviation)		Clinical Psychology Z significance Mean (standard deviation)	
	Pre	Post	Pre	Post	Pre	Post
My ability to apply basic sociological context and theory relevant to interprofessional practice	3.17 (0.83)	3.54 (0.7) $Z = 3.102$ $p < 0.002$	3.0 (0.74)	3.7 (0.74) $Z = 3.491$ $p < 0.000$	3.3 (0.75)	4.0 (0.1) $Z = 1.890$ $p < 0.059$
My ability to describe the impact of economic, practical and environmental factors, causation factors and service utilization	3.2 (0.8)	3.9 (0.58) $Z = 4.185$ $p < 0.000$	2.8 (0.82)	3.5 (0.88) $Z = 3.380$ $p < 0.001$	3.6 (0.53)	4.4 (0.5) $Z = 1.890$ $p < 0.59$
My ability to critique a model of interdisciplinary health and social care directed at tackling inequalities in health	2.9 (0.8)	3.8 (0.6) $Z = 4.666$ $p < 0.000$	2.9 (1.0)	3.6 (1.0) $Z = 3.394$ $p < 0.001$	3.3 (0.48)	3.8 (0.4) $Z = 2.000$ $p < 0.46$
My ability to analyse the quality and impact of service provision in the community	3.0 (0.9)	3.85 (0.55) $Z = 4.045$ $p < 0.000$	3.1 (0.9)	3.8 (0.73) $Z = 3.456$ $p < 0.001$	3.4 (0.5)	4.0 (0.1) $Z = 2.000$ $p < 0.046$
My ability to describe the range and roles of professionals working to meet the health and social care needs of the community	3.7 (.76)	4.2 (0.53) $Z = 3.111$ $p < 0.002$	3.1 (0.9)	3.8 (0.72) $Z = 3.841$ $p < 0.000$	3.4 (0.5)	4.2 (0.41) $Z = 2.236$ $p < 0.25$
My ability to analyse the central role of the patient/service user in interprofessional working	3.5 (0.85)	4.1 (0.56) $Z = 3.755$ $p < 0.000$	3.3 (0.87)	4.0 (0.75) $Z = 3.216$ $p < 0.001$	3.9 (0.7)	4.5 (0.54) $Z = 1.633$ $p < 0.102$
My ability to analyse the importance of good team working relationships which draw effectively on the skills /roles of different professionals to meet patient/service user needs	3.7 (0.77)	4.3 (0.57) $Z = 3.272$ $p < 0.001$	3.5 (0.9)	4.3 (0.77) $Z = 3.837$ $p < 0.000$	4.0 (0.57)	4.5 (0.54) $Z = 1.342$ $p < 0.180$
My ability to assess the importance of effective communication within multi-disciplinary teams to ensure productive joint working	3.8 (0.77)	4.3 (0.5) $Z = 3.091$ $p < 0.002$	3.6 (0.9)	4.3 (0.76) $Z = 3.474$ $p < 0.001$	4.1 (0.7)	4.2 (0.4) $Z = 0.000$ $p < 1.00$

*Wilcoxon signed rank test.

payment of all patients who become joint teachers, hosting student interviews in their homes or care setting.

Discussion

One of the challenges for IPE is to enable learning about team working and collaborative practice in the context of interprofessional day-to-day working (Morison et al., 2003; Gordon et al., 2004; Barr, 2007). Students need learning situations which immerse them into the realities of the everyday interactions within and between health and social care professionals who place patients centrally in their team working. It is only within practice that students can begin to disentangle the elements of being interprofessional. Furthermore, IPE needs to involve the patient and carer as stated clearly in Barr's criteria for effective IPE, ''Put patient service users at the centre – involving patients and clients in the designing, teaching and participating and assessing of programmes'' (Barr, 2002, p. 33).

The Leicester Model embraces the principles of ''interprofessionality'' defined as the development of cohesive practice between professionals (D'Amour & Oandasan, 2005; Hudson, 2002) and has achieved a supportive learning environment, which has contributed to its sustainability. Interprofessional learning in inner city areas where people experience socio-economic disadvantage is particularly important. The lives studied over the years have given students access to over 100 different agencies caring for up to 35 patient case studies in any one site. Typical cases are children with behavioural issues, young single parent mothers, young adults with cardio-vascular disease or mental health problems, elderly people with complex medical and social needs. These patients have in common current involvement with a range of health and social care services that require collaboration to deliver a quality service.

Placing students and patients central in the curriculum design is a key factor in the Model's success. Student evaluations show that they learn from the frustrations of patients, their families and carers and then through agency interviews, compare these to professional dilemmas. They question the position of agencies that are often trying to deliver quality where funding and resources are scarce. Students witness and are made aware of the importance of patient-centred team working and the need for sharing different professional perspectives in trying to seek practical solutions (Robson & Kitchen, 2007; Whittington & Bell, 2001). It was not surprising therefore that students repeatedly stated that they had strengthened their team working skills and gained a more insightful appreciation of the complexity of health and social care delivery. There have been no recorded events of students unable to communicate with or relate to their patient, or feeling uncomfortable with the often distressing case study content, despite numerous pre-course apprehensions.

A number of papers have described a range of opportunistic placement models, from student-led to clinical or tutor-led stating that learning in practice settings requires large investments of time and resources (Mallik & McGowan, 2007; Stew, 2005). Learning about team working and collaboration where teams are active in delivering services to patients should enable students to reconcile theory to practice and prepare them for the realities of practice (Barr & Ross, 2006; Cooper & Spencer-Dawe, 2006; Gordon et al., 2004). The guide to the Leicester Model offers advice on how to achieve this learning in practice which has ensured that the clinical teams maintain their motivation and commitment. There is no doubt that the shift from acute hospital care to community-based care offers increasing opportunities for these interprofessional placements (Lorimer, 2006).

Another reason for the Model's longevity is the financial partnership offered by the Medical school which has been willing to share teaching budgets with other health and social

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care schools to cover the cost of course delivery. Establishing a reimbursement strategy from the outset with Chief Executives of health and social care trusts enabled the course to be seen as part of the Trusts' business plans. Securing time from general practitioners (family medicine doctors) and other agencies for student interviews is difficult in times of financial constraint but this course has withstood these challenges partly due to availability of funding and the motivation of clinicians who see the benefit of engaging in the model. This funding also supported coordinator roles necessary to maintain the myriad of relationships between Higher Education Institutions and Health and Social Care Trusts, other agency partners and stakeholders including patients.

Finally, the Model appears to enable deep learning, demonstrated in long-term re-call of medical students. It has also motivated students who have lobbied on issues of poverty and deprivation; and has created student aspirations to work in interprofessional teams.

Conclusion

This paper offers a condensed summary of extensive data collected through the first ten years of the IPE course ''Health in the Community''. It demonstrates a journey of discovery and progress which has resulted in a course that has not only been adopted locally but also transferred regionally within the Leicester/Warwick Medical School, and internationally to Gent, Belgium in 2001 and Saitama Prefectoria & Chiba Universities in Tokyo, Japan in 2005.

There are few sustained, structured IPE learning opportunities in practice which engage the whole cohort of health and social care students across a region, the Leicester Model is such an example.

Many extol the virtues of patient-centred IPE although few have engaged successfully in fully empowering patients and carers (Barr, 2003; Cooper & Spencer-Dawe, 2006; Kilminster et al., 2004; Reeves et al., 2006). The Leicester Model is an example of sustainable interprofessional learning valued by those who take part.

Although this paper has focussed on the student experience and application of the model within inner city primary care teams, future papers will report on the patient and clinical team experiences and outcomes.

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Note

1. Patient/User. Throughout this paper the word patient will be used to denote those members of the general public who receive health and social care often referred to by practitioners as patient, user, service user or client.

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