Multiprofessional learning: the attitudes of medical, nursing and pharmacy students to shared learning

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Objectives The belief that the effectiveness of patient care will improve through collaboration and teamwork within and between health care teams is providing a focus internationally for 'shared learning' in health professional education. While it may be hard to overcome structural and organizational obstacles to implementing interprofessional learning, negative student attitudes may be most difficult to change. This study has sought to quantify the attitudes of first-year medical, nursing and pharmacy students' towards interprofessional learning, at course commencement.

Design The Readiness for Interprofessional Learning Scale (RIPLS) (University of Liverpool, Department of Health Care Education), was administered to first-year medical, nursing and pharmacy students at the University of Auckland. Differences between the three groups were analysed.

Setting The Faculty of Medical and Health Sciences, University of Auckland.

Results The majority of students reported positive attitudes towards shared learning. The benefits of shared learning, including the acquisition of teamworking skills, were seen to be beneficial to patient care and likely to enhance professional working relationships. However professional groups differed: nursing and pharmacy students indicated more strongly that an outcome of learning together would be more effective teamworking. Medical students were the least sure of their professional role, and considered that they required the acquisition of more knowledge and skills than nursing or pharmacy students.

Conclusion Developing effective teamworking skills is an appropriate focus for first-year health professional students. The timing of learning about the roles of different professionals is yet to be resolved.

Keywords Education, medical/*methods; education, pharmacy/*methods; education, nursing/*methods; *learning; professional competence; attitude of health personnel; curriculum; questionnaires; New Zealand.

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Introduction

There is an increasing overlap of knowledge and skills between health professionals. Changes in health service delivery have blurred the boundaries which define the roles and responsibilities of the various health professions. Internationally, health professional education is addressing this change in health service delivery through the provision of interprofessional learning (learning activities involving two professional groups), or multiprofessional learning (learning activities involving three or more professional groups). A brief review of literature reveals a belief that the provision of effective patient care places an emphasis on collaboration and teamwork, within and between health care teams in community settings and in the care provided in hospitals.[1] Davies describes the benefits of working 'together' rather than 'alongside' as energizing and resulting in new ways of tackling old problems,[2] and Parsell & Bligh note that:

> The need to produce practitioners who are adaptable, flexible, collaborative team workers with highly developed interpersonal skills is providing both the impetus and justification for the introduction of more shared learning opportunities.[3]

The literature however, is not clear as to whether 'learning together' during undergraduate education will result in better 'working together' practices, and/or improved patient outcomes. While Zwarenstein

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Key learning points

Positive student attitudes to multiprofessional learning are important.

Students believe that shared learning activities will lead to enhanced professional working relationships.

Shared learning for first-year students should focus on teamwork skills.

& Reeves indicate that there is now some evidence to support a positive impact of nurse–doctor collaboration on patient outcomes,[4] more research is clearly needed. The gap between ideology and evidence has not yet been closed.[5] Nevertheless a common perspective is that 'shared learning' 'should be introduced early in the undergraduate programme and continue throughout the curriculum in sessions or themes where two or more different health curricula can contribute'.[6]

The term 'shared learning' is used deliberately, to distinguish from 'shared teaching'. Shared teaching refers to learners from different professions sitting side by side in lectures where the development is not supported by deliberate educational strategy or intended learning outcomes, for example, collaborative team workers. Shared teaching is frequently adopted for economic reasons rather than educational principles. This may be appropriate, although there is some evidence that this may actually reinforce stereotypes and foster resentment.[6] In shared teaching arrangements, students are typically 'passive' recipients and interactive learning may be minimal.

In contrast, interprofessional learning is an educational process through which students are provided with structured learning opportunities for shared learning. The goal of such learning is to enable learners to acquire knowledge, skills and professional attitudes which they would not be able to acquire effectively in any other way. This is how health professional students are helped to understand the complexities of working in a multiprofessional environment. Key drives relate to the need to develop adaptable, flexible, collaborative team workers with high level interpersonal skills, who understand the contribution each health profession makes to patient and health outcomes.

In the year 2000 the Faculty of Medical and Health Sciences at the University of Auckland introduced two new programmes, the Bachelor of Nursing and the Bachelor of Pharmacy, together with some major modifications to the curriculum which prepares students for medical careers. Other health professional groups are not included in undergraduate preparation at the University of Auckland; however, there is a large group of students studying for health science and science degrees. The total first-year undergraduate student population in the Faculty in 2000 numbered approximately 770. There were 79 medical students, 49 nursing students and 52 pharmacy students. The planning for the changed medical curriculum and the two new programmes (disciplines which were both new to the University) had acknowledged the need to develop multiprofessional learning opportunities, although it was less clear how this might happen.

The many difficulties in shared learning are documented. These include timetabling difficulties, discrepancies in numbers of students from the different student groups, contrasting learning and assessment methods, different curricular lengths, lack of commitment, planning and resource difficulties, such as lack of small-group space, and so on. All of these surfaced as we began planning how to achieve multiprofessional learning opportunities across the three professional areas. Students share teaching in core biophysical science papers and some social science areas in their first semester. Some of this teaching is also shared with the students enrolled in science and health science degrees. Classes are large (up to 800 students, split into two streams, in some courses) and the focus is shared teaching. In the second semester the three professional groups study a course entitled 'Population medicine'. This course draws on observations of communities and populations to develop new knowledge and inform public health and health care practices. Intended learning outcomes include the development of skills in working effectively and efficiently as a team. The learning outcomes have been chosen deliberately and acknowledge that at first-year level students have not yet developed a professional identity. The appropriate learning outcome at this level is effective teamwork, and to be successful, shared learning must develop in students' skills associated with teamwork.[7] This is best achieved where students work towards professionally relevant and common educational goals. As the students progress, shared learning outcomes such as understanding each profession's role, will be incorporated.

It is also reported that difficulties in implementing and developing shared learning are attitudinal.[8] Parsell & Bligh explain that while overcoming structural and organizational difficulties might be formidable, it is the changing of attitudes which is most difficult.[9] The intent to reduce or limit prejudices which might exist between professionals, and to increase the mutual knowledge and understanding of the professions in

order to improve teamwork and collaborative skills, are generally accepted as the aims of interprofessional learning. By paying attention to the first two points, through addressing a change in attitudes, the third aim will be facilitated.[8] Parsell & Bligh identify, from theories and practical applications, the characteristics and conditions needed in order to achieve positive outcomes for interprofessional learning. These are grouped into four key dimensions:

- relationships between different professional groups (values and beliefs that people hold);
- collaboration and teamwork (knowledge and skills needed);
- roles and responsibilities (what people actually do), and
- benefits to patients, professional practice and personal growth (what actually happens).[8]

The first of these is concerned with the variation in attitudes between professional groups that may need exploration when considering shared learning. It is reported that a shift in attitudes is needed to make interprofessional learning effective.[8] Accordingly, in order to design shared learning activities, assessing student attitudes to shared learning on entry to their courses and at other times during their programme might be useful. The Department of Health Care Education at the University of Liverpool has developed an instrument to measure students' attitudes to shared learning, the Readiness for Interprofessional Learning Scale (RIPLS).[10] At the University of Auckland it was decided to assess the readiness of medical, nursing and pharmacy students for multiprofessional shared learning, prior to their undertaking shared learning activities and the Population medicine course. The assessment is to be repeated at the end of the second semester, following the Population medicine course, and students' attitudes following their joint learning experiences will be compared. This paper reports on the attitudes of medical, nursing and pharmacy students to multiprofessional learning at the University of Auckland as they commence their studies.

Readiness for Interprofessional Learning Scale (RIPLS)

The RIPLS was developed to measure student attitudes to shared learning. It consists of 19 statements measuring the strengths of students' beliefs concerning shared learning. The statements in the questionnaire are based on the desired or intended positive outcomes of successful shared learning. Parsell & Bligh describe the development of the instrument, its piloting with students from eight professions, and a further study involving almost 1000 students in five professions, which confirmed the content and construct validity of the scale.[8,10] They conclude that the 19-item scale, with three subscales named 'teamwork and collaboration', 'professional identity' and 'roles and responsibilities', appears to reveal a causal relationship between the variable 'readiness for shared learning' and some of the attributes needed for teamwork and collaboration, professional roles and practice, interpersonal relationships, personal growth and benefits to patients.[10] In the study reported here, the University of Liverpool RIPLS instrument was used to quantify attitudes towards interprofessional learning, prior to shared learning activities.

Methods

The RIPLS tool, entitled the *Multiprofessional shared learning questionnaire*, was administered to first-year medical, nursing and pharmacy students within 4 weeks of the commencement of their studies at the University of Auckland. In order to make it appropriate to the University of Auckland context, and following a pilot study with second-year medical students, the definition of shared learning, included at the top of the questionnaire, was amended to read: 'Shared learning is learning interactively with other health professional students'.

The data were analysed using chi-squared to test observed differences between the groups, and the frequencies of responses were evaluated.

Response

Overall, 180 students returned the questionnaire. This represents a response rate of 90%, and includes 98% of first-year nursing students, 92% of first-year medical students and 83% of first year pharmacy students (Table 1).

The majority of respondents were female (71%), were studying for their first degree (85%) and spoke English as their first language (71%) (Table 1).

Results

Subscale 1: teamworking and collaboration

The items in the first subscale deal with the 'acquisition and effectiveness of teamworking skills and…the need for positive relationships between professionals and other health care students'.[8] The majority of students at the University of Auckland responded positively to the

Table 1 Sample characteristics

	Medicine		Nursing		Pharmacy	
	n	%	*n*	%	*n*	%
Male	35	44	2	4	16	31
Female	44	56	47	96	36	69
Current study is first degree	70	89	36	73	47	90
Current study is not first degree	9	11	13	27	5	10
English first language	57	72	42	86	28	54
English not first language	21	27	7	14	24	46

nine statements contained in this subscale (Table 2). The items in this subscale are clustered into two groups: 'effective teamworking' and 'relationships with other professionals'.

(a) Effective teamworking

Overall, the responses to the items in this first subscale indicated that, for first-year medical, nursing and pharmacy students, shared learning is considered to enhance their effectiveness at work; and conveyed a recognition by the students of the need to share knowledge and skills as a way of understanding clinical problems in the workplace.

The majority of the 180 respondents agreed or strongly agreed that shared learning would make them more effective in the health care team ($n = 154$, 85%) and that 'Patients would ultimately benefit if health care students worked together' ($n = 165$, 92%). Students indicated that the 'ability to understand clinical problems' would be enhanced by shared learning ($n = 135$, 75%). Respondents were also very positive about teamworking benefits, as the majority agreed or strongly agreed that 'Teamworking skills are essential for all health care students to learn' ($n = 160$, 89%), and that 'Communication skills should be learned with other health professionals' ($n = 130$, 72%). That 'Shared learning will help me understand my own professional limitations' was thought to be true by the majority of respondents ($n = 112$, 62%) (Table 2).

However, there was a significant difference in the responses to two of the questions. Nursing students indicated more strongly than medical or pharmacy students that 'Learning with other students will help me to become a more effective member of a health care team, and medical students were least likely to consider that 'Shared learning with other health care students will increase my ability to understand clinical problems' (Table 2).

(b) Relationships with other professionals

There was strong agreement with the statements comprising this subscale. Over two-thirds of students agreed or strongly agreed with all three propositions, i.e. that 'Learning between health care students before qualification would improve working relationships after qualification ($n = 147$, 82%); that 'Shared learning will help me think positively about other health care professionals' ($n = 140$, 78%), and that 'For small-group learning to work, students need to trust and respect each other ($n = 164$, 91%).

Two significant differences between the responses were revealed: only medical students expressed disagreement with the proposition that shared learning would encourage them to think positively about other health care professionals, and a greater proportion of female students strongly agreed that 'For small-group learning to work, students need to trust and respect each other'.

Subscale 2: professional identity

The items in subscale 2 are based on ideas of negative and positive professional identity. These 'reflect the importance attached to the acquisition of professional identities by students as a means of defining their lives, and the power of individual professional cultures'.[8]

(a) Negative professional identity

Respondents mostly disagreed with the three items in this section. The majority of respondents disagreed with the assertions 'I don't want to waste my time learning with other health care students' ($n = 135$, 75%) and 'It is not necessary for undergraduate health care students to learn together' ($n = 103$, 57%). A smaller majority of students from all three health professional groups felt that *clinical problem-solving need not be learnt solely with students from their own profession* ($n = 96$, 53%). There was one significant difference between the responses of the different health care professionals:

Nursing students disagreed most strongly with the statement that 'It is not necessary for undergraduate health care students to learn together'.

(b) Positive professional identity

Over two-thirds of respondents from each health profession group agreed or strongly agreed with the four items in this section. Respondents agreed that shared learning with other health care professionals would help them to communicate better with patients and other professionals ($n = 141$, 78%), and that it would 'help to clarify the nature of patient problems' ($n = 120$, 67%). Most would 'welcome the opportunity to work on small

Table 2 Questionnaire results

Subscales/statements	Student group	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total	*P*
Subscale 1: Teamwork and collaboration								
(a) Effective teamworking								
Learning with other students will help me to become a more effective member of a health care team	Medicine	1	2	12	43	21		
	Nursing	0	0	1	20	26		
	Pharmacy	0	1	5	31	13		
	Total	1	3	18	94	60	176	0·02
Patients would ultimately benefit if health care students worked together to solve patient problems	Medicine	1	2	7	41	28		
	Nursing	0	1	1	21	26		
	Pharmacy	0	1	2	23	26		
	Total	1	4	10	85	80	180	0·48
Shared learning with other health care students will increase my ability to understand clinical problems	Medicine	1	7	16	44	11		
	Nursing	0	3	0	34	9		
	Pharmacy	0	0	13	27	10		
	Total	1	10	29	105	30	175	0·009
Communication skills should be learned with other health care students	Medicine	1	3	19	36	20		
	Nursing	0	2	4	28	13		
	Pharmacy	0	3	14	21	12		
	Total	1	8	37	85	45	176	0·32
Team-working skills are essential for all health care students to learn	Medicine	0	1	5	32	41		
	Nursing	0	1	3	19	24		
	Pharmacy	0	1	6	20	24		
	Total	0	3	14	71	89	177	0·78
Shared learning will help me to understand my own professional limitations	Medicine	0	7	19	44	9		
	Nursing	2	5	12	25	3		
	Pharmacy	1	2	17	26	5		
	Total	3	14	48	95	17	177	0·46
(b) Relationships with other professionals								
Learning between health care students before qualification would improve working relationships after qualification	Medicine	0	2	12	45	20		
	Nursing	0	1	3	22	21		
	Pharmacy	0	0	12	23	16		
	Total	0	3	27	90	57	177	0·1
Shared learning will help me think positively about other health care professionals	Medicine	2	6	19	33	19		
	Nursing	0	0	5	27	17		
	Pharmacy	0	0	8	33	11		
	Total	2	6	32	93	47	180	0·02
For small-group learning to work, students need to trust and respect each other	Medicine	0	0	5	38	36		
	Nursing	0	0	2	21	23		
	Pharmacy	0	1	4	26	20		
	Total	0	1	11	85	79	176	0·35
Subscale 2: Professional identity								
(a) Negative professional identity								
I don't want to waste my time learning with other health care students	Medicine	28	27	19	2	3		
	Nursing	30	13	4	0	0		
	Pharmacy	20	17	11	2	1		
	Total	78	57	34	4	4	177	0·08
It is not necessary for undergraduate health care students to learn together	Medicine	14	24	18	19	4		
	Nursing	8	29	6	3	0		
	Pharmacy	6	22	19	2	2		
	Total	28	75	43	24	6	176	0·001
Clinical problem-solving can only be learnt effectively with students from my own department/school	Medicine	8	34	17	16	4		
	Nursing	5	27	9	7	1		
	Pharmacy	3	19	17	9	4		
	Total	16	80	43	32	9	180	0·48

Table 2 (*Contd.*)

Subscales/statements	Student group	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total	*P*
(b) Positive professional identity								
Shared learning other health care professionals will help me to communicate better with patients and other professionals	Medicine	1	1	15	44	18		
	Nursing	0	3	3	27	14		
	Pharmacy	0	2	11	28	10		
	Total	1	6	29	99	42	177	0·3
I would welcome the opportunity to work on small group projects with other health care students	Medicine	0	6	13	45	15		
	Nursing	0	0	10	28	9		
	Pharmacy	1	2	11	28	9		
	Total	1	8	34	101	33	177	0·44
Shared learning will help to clarify the nature of patient problems	Medicine	1	4	24	38	12		
	Nursing	0	0	12	26	8		
	Pharmacy	0	1	13	29	7		
	Total	1	5	49	93	27	175	0·47
Shared learning before qualification will help me to become a better team-worker	Medicine	2	3	11	41	22		
	Nursing	0	3	3	23	19		
	Pharmacy	0	1	8	29	14		
	Total	2	7	22	93	55	179	0·41
Subscale 3: Roles and responsibilities								
The function of nurses and pharmacists is mainly to provide support for doctors	Medicine	9	25	17	17	11		
	Nursing	28	12	4	2	1		
	Pharmacy	14	22	12	3	0		
	Total	51	59	33	22	12	177	0·001
I'm not sure what my professional role will be	Medicine	13	24	17	19	6		
	Nursing	13	24	7	5	0		
	Pharmacy	7	25	13	5	2		
	Total	33	73	37	29	8	180	0·03
I have to acquire much more knowledge and skills than other health care students in the Faculty	Medicine	0	5	21	34	19		
	Nursing	3	21	19	4	0		
	Pharmacy	1	15	27	7	1		
	Total	4	41	67	45	20	177	0·001

group projects with other health care students ($n = 134$, 74%), and considered that 'Shared learning before qualification will help me to become a better teamworker' ($n = 148$, 82%).

Subscale 3: roles and responsibilities

The items in this scale are concerned with the idea that professional practice promotes some health professional roles, notably medical, over others. Medical students are least opposed to the idea that 'The function of nurses and pharmacists is mainly to provide support for doctors' and more medical students than nurses or pharmacists consider that they have *more knowledge and skills to acquire in the course of their studies*. Medical students are the least sure of what their professional role will be. Each of these differences was statistically significant (Table 2).

Analysis also revealed statistically significant differences between the responses of male and female students: male students were less likely to disagree that the 'function of nurses and pharmacists is mainly to provide support for doctors', and a greater proportion of female respondents than of male respondents were sure of their professional role.

Discussion

The findings from this study have provided a focus for planning multiprofessional learning strategies within the Faculty of Medical and Health Sciences. While the findings allow only an exploration of attitudes and do not suggest important differences between the attitudes of the three groups, a number of issues are raised.

Overall, all three groups of students are positive about the benefits of shared learning. The majority of students

recognise benefits of shared learning, that the acquisition of teamworking skills is useful for their future working lives, beneficial to the care of patients and likely to enhance professional working relationships. There is a consistency across the three subscales for all three groups. Communication is seen as an area where skills should be learned with other students. Implementation of this in our programmes is an area to be considered, where English is not the first language, in particular for pharmacy students (46%) compared with 27% of medical students and 14% of nursing students. Students acknowledge that teamworking skills are an essential component of their learning, and that learning together may improve working relationships after qualification.

In this study, the students were at the beginning of their careers and did not yet have a professional identity, and the staging of multiprofessional learning and the particular learning outcomes to be achieved at different levels are significant issues for consideration. The decision to focus on teamwork in the first year, without consideration of the different roles of each professional group, is appropriate. While the literature on teamwork and collaboration in health care has only tentative findings about the benefits which exist for health settings and patient outcomes, there are reports that barriers to teamwork include a lack of knowledge about the roles of different health professionals.[11] Davies describes as important the recognition of what each professional brings that is different, which makes collaborative work more powerful than working separately: 'It is the questions and challenges that arise from the differences that are vital'.[2]

The timing of learning about different professional roles is an issue to be resolved and determined for our programmes. The literature is not clear on when this should most usefully occur. Harden suggests that what matters most is that an approach is adopted which is appropriate for the phase or stage of the students' learning.[5] Other reports suggest that the timing of this aspect of multiprofessional learning should best be left to a post-basic level or when students can undertake clinical practice together.[1,11] It is acknowledged that undergraduate multiprofessional learning is qualitatively very different from that at a post-basic level; however, opportunities for small-group learning or problem-based multidisciplinary case studies can provide a focus for undergraduate students to consider different professional roles.[1] While Pirrie *et al.* report that in general undergraduate students seek to develop a profession-specific knowledge and skills base,[1] the nursing and pharmacy students in this study were more certain about what their professional role would be than were the medical students. The situation where differing roles of the professions should be considered may vary for each group, and issues are raised about how to place this when curriculum structures are quite different.

Much of the literature on teamwork and collaboration focuses on relationships between doctors and nurses with little about other health professionals.[11] Parsell & Bligh suggest that 'the boundaries which delineate roles in professional practice and the role of academic training in supporting these divisions, are key issues'.[8] The literature supports the view of the medical students in this study: the tendency to view doctors as having pre-eminence over other health professionals. While multiprofessional learning provides an opportunity for this attitude to alter, Davies suggests that nursing is no more conducive to collaborative working than medicine. 'Both nursing and medicine need to change if a collaborative model is to work'.[2] Perceptions that the influence of 'stereotypical attitudes' affects collaborative working practices are identified by Pirrie *et al.*, alongside a belief that these can be altered through multiprofessional learning.[1] The suggestion of Poldre that programme goals should include not only deliberate learning strategies and opportunities to understand different professional roles, but also encourage social interaction amongst students is a further area for consideration.[11] The work of Terenzini & Pascerella supports this view.[12] They found student learning to be closely associated with non-classroom interactions with teaching staff, the nature of peer group interactions and extracurricular activities. Although the reported research and commentary focus in general on interprofessional and multiprofessional learning opportunities, the value of social activities and non-classroom interaction is an area for research which should not be overlooked.

Contributors

Each of the three authors contributed to this paper. MH was referred to the instrument used in the study during a visit to the University of Liverpool in 1999, and subsequently undertook a literature review and introduced the idea for the study in the Faculty of Medical and Health Sciences. RL and EW constructed the questionnaire, undertook the bulk of the analysis and led discussion around presentation of the findings. All three authors administered the questionnaire and wrote the final paper. EW prepared the final draft for submission to *Medical Education*.

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