

Early Experiences of Interdisciplinary Learning: A Framework for Professional Learning for the Future?

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Abstract

Background: It is recognised that no one profession has the expertise to respond adequately to the complexity of modern day patient care. It is therefore necessary to expose healthcare students to situations where they can work with other professional groups and share knowledge. An interdisciplinary week was devised at the University of Wolverhampton to allow students this interaction but in the controlled environment of a purpose built clinical skills centre.

Aim: To bring together and expose four different healthcare professional groups to simulated clinical scenarios in order to engender greater awareness of each groups' role within a healthcare team.

Methods: Surveys pre and post the interdisciplinary week.

Results: Most students prior to studying their respective courses had an appreciation for the work their role would entail, although over two-thirds of students stated they had subsequently changed their opinion since starting their course. The concept of shared learning was positively received by all professional groups.

Conclusion: The week allowed different professional groups to learn from each other and afforded them an opportunity to gain a greater understanding of each other's role.

Keywords: *Interprofessional learning; interdisciplinary learning; nursing; pharmacy; physician assistant*

Introduction

This paper reports on the implementation of a Interdisciplinary Simulated Learning Week (IDSLW) at the University of Wolverhampton. The intention of the IDSLW was to provide different healthcare students the opportunity to learn with, from and about one another in line with the United Kingdom Centre for the Advancement of Interprofessional Education (CAIPE) understanding of interprofessional education. (CAIPE, 2009) The impetus for developing the IDSLW was in recognition to the numerous policy directives from service and education (WHO, 1988; Department of Health, 2000a, 2000b, 2001; QAA, 2001; McNair et al., 2005) that highlight the need for improving interprofessional collaboration in healthcare. Several interprofessional education initiatives have been reported at both undergraduate and postgraduate levels from the UK and abroad (Cooper et al., 2005; Coster et al., 2008; Curran et al., 2008; el-Zubier et al., 2006; Horsburgh et al., 2006; Freeth 2001; Freeth et al.,

2002; Koppel et al., 2001; Reeves, 2001), however, unlike many studies that have either been at postgraduate level (Freeth 2001; Freeth et al., 2002; Koppel et al., 2001; Reeves, 2001) or through experiential programmes during undergraduate study (McNair et al., 2005), the IDSLW was designed to create realistic clinical learning environments within the classroom setting.

Method

Students from four healthcare backgrounds were invited to participate in the week: year three nurses from adult, child and learning disability branches; year two physician assistants; year three midwives; and year three pharmacists.

The week was constructed around students working in multidisciplinary teams to solve clinical problems in a variety of healthcare settings. Ten scenarios were developed by

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practitioners and academics from the four professional groups. Some of the scenarios had a stronger discipline-specific focus than others and practitioners and academics from that respective field led on their development. Once scenarios had been constructed, each went through a number of reviews and subsequent modification by all members of the scenario development group before being signed off. In addition, scenarios were devised so that students from one or more professional groups could take the lead but were constructed in a way that students from all groups could have a contribution to make in the majority of scenarios. Each scenario was designed to be performed in real time and in a number of the scenarios, clinical actors and Mencap service users acting as patients were used to simulate clinical practice.

On the first day of the IDSLW during the introductory sessions, and prior to students being assigned in to interdisciplinary groups, they were asked to complete a survey to gain baseline information relating to their understanding of their profession before starting the course, perceptions of their course since joining and what expectations they had of the week. Questions used on the survey instrument were both closed and open. Closed questions were coded and analysed descriptively using Excel and open questions were investigated for themes and reorganised with similar responses grouped together. Additionally, students were also asked to complete a range of validated statements on their views toward interdisciplinary learning using the 'Readiness for Interprofessional Learning (RIPL)' survey. (Parsell and Bligh, 1999).

Results

Baseline Survey

Eighty-six completed forms were returned. (Table I) Response rates were high for all professional groups (71 to 100%), except in adult nurses (50%).

	Pre-week survey		Post-week survey	
	n	%	n	%
Nursing adult	13	15.1	13	21.0
Nursing child	10	11.6	8	12.9
Nursing learning disability	13	15.1	7	11.3
Not specified			1	1.6
Midwifery	23	26.7	20	32.3
Physician's assistant	5	5.8	7	11.3
Pharmacy	22	25.6	6	9.7
Total	86	100.0	62	100.0

Table I: Breakdown of Respondents

Students were first asked what understanding they had of the role their occupation performed prior to starting their respective courses. For student nurses and midwives thematic analysis revealed two major themes in relation to their role, firstly, caring for people (n=28):

- 'providing care for patients' (case 16 – adult nurse)
- 'nursing is the everyday care of a patient' (case 76 – adult nurse)

'to my mind it was providing women-centred care' (case 26 – adult nurse)

and helping and supporting people (n=11);

- 'support families' (case 8 – child nurse)
- provide support throughout pregnancy' (case 51 - midwife)*

Interestingly, those student nurses specialising in learning disabilities talked about supporting patients (n=6) and promoting health (n=3) but none of the twelve who answered the question talked about caring. Conversely, student nurses specialising in adult and child nursing talked overwhelmingly about care to the patient (child branch n=10/10 and adult branch nurses n=7/13) as opposed to support for people (n=7/23). Four adult and four child branch student nurses also stated they had little knowledge of what was involved with the role before they started the course. In contrast, no physician assistant or pharmacy student stated they had limited awareness or knowledge about their respective positions. Physician assistants were clear in their mind that the role would entail working alongside doctors in a supporting role that provided patient care. The only professional group that did not clearly mention care or support to patients or people were the student pharmacists; just one student spoke of care but this was in the context of the pharmacist being a healthcare provider. Clearly, student pharmacists thought the main responsibility of pharmacists was dispensing medicines (n=12/22):

- 'predominantly involves dispensing' (case 11 - pharmacist)

'I thought pharmacists were just involved with dispensing prescriptions' (case 42 - pharmacist)

Other less strong themes articulated by pharmacy students, were they believed they would be medicine experts (n=6) and had a role to play in advising and counselling patients and doctors (n=6) on medicine use.

Over two-thirds of students (n=58, 69%) stated that since starting their respective courses their opinion about the role had changed. Sub-analysis revealed that student nurse perception had changed the most (n=29/35 83%; adult nurse, n=12/13; child nurse, n=7/10; learning disability, n=10/12); followed by pharmacy students (n=15/22, 68%) and midwives (n=13/23, 57%). Only in the physician assistant students were perceptions unaltered.

When students were asked to explain how their perceptions

had changed thematic analysis showed they were more aware or had a greater understanding of their respective roles.

'I didn't realise how broad a nurses role is from caring for the patient everyday to health promotion and prevention' (case 15 – adult nurse)

'I now understand a midwives's role is vast' (case 49 - midwife)

'I have been able to see the roles and responsibilities of pharmacists other than that of dispensing' (case 69 - pharmacist)

Additionally, the concept of accountability was prominent (n=13), especially within the student midwives (n=8/13)

'I was not aware of the potential for litigation that is involved in midwifery' (case 21 - midwife)

'We are accountable for any action we take' (case 23 - midwife)

Other themes to emerge within a single professional group included student nurses stating the course was more challenging than they expected (n=7) and student midwives voicing dissatisfaction with their job (n=4).

The respective professional groups also had the opportunity to give their opinion on their current understanding of their role and also the roles and responsibilities of the other groups. The findings from thematic analysis are summarised in Table II.

Table II: Student Perception on their Role and that of Other Professional Groups at the start of the week.

Shaded squares represent professional groups own perception of their current role

For student nurses the central tenants of care and support were most evident and reflect understanding of their roles prior to starting the course. In addition, new themes were evident. The concept of 'holistic care' and being a patient advocate were apparent.

'To provide holistic individualised quality care to patients' (case 82 – adult nurse)

'Advocate for the patient in providing holistic patient care' (case 72 – adult nurse)

In common with learning disability nurses perception prior to starting their course, support (n=6) and health promotion (n=8) still figured highly although this group were also now inclined to talk about care to the patient (n=7) and advocacy (n=3).

'Practise in a holistic manner and to be an advocate; to empower and promote health' (case 81 – learning disability nurse)

The other professions saw nurses as predominantly providing patient care, although the pharmacists also identified administration of medicines as their role. Student midwives like the nurses, saw their role as care and support. However, other roles, such as health promotion, which nurses identified

	Nurses (Adult, child and learning disability)	Midwives	Physician Assistants	Pharmacists
Nurses (Adult, child and learning disability)	Provide care (n=21) Support (n=12) Holistic care (n=8) Advocate (n=11) Health promotion (n=12) (n=34)	Provide care (n=18) Support (n=2) Holistic care (n=1) (n=21)	Provide care (n=3) (n=4)	Provide care (n=15) Administer drugs (n=8) (n=21)
Midwives	Provide care (n=21) Support (n=13) Advocate (n=2) (n=35)	Provide care (n=10) Support (n=5) Holistic care (n=2) Advocate (n=1) (n=15)	Provide care (n=4) Support (n=1) (n=4)	Provide care (n=4) Support (n=10) (n=19)
Physician Assistants	Provide care (n=1) 'Assist doctors' (n=12) No idea/unsure (n=8) (n=30)	Provide care (n=1) 'Assist doctors' (n=2) No idea/unsure (n=12) Assess & diagnose (n=2) (n=17)	history taking, examination and diagnosis (n=4) (n=4)	Provide care (n=1) 'Assist doctors' (n=7) No idea/unsure (n=6) Hybrid between doctor and pharmacist (n=3) (n=20)
Pharmacists	Dispense drugs (n=18) Advice/counselling on drugs (n=13) Ensure drug safety (n=9) (n=35)	Dispense drugs (n=15) Advice/counselling on drugs (n=5) Ensure drug safety (n=6) (n=22)	Dispense drugs (n=1) Advice/counselling on drugs (n=1) Ensure drug safety (n=4) (n=4)	Dispense drugs (n=6) Advice/counselling on drugs (n=10) Ensure drug safety (n=3) Optimising drug treatment (n=4) Drug expert (n=5) (n=19)

with were not apparent to midwives. The two central roles of care and support were also themes identified by physician assistants and pharmacists in relation to nurse and midwifery roles.

The physician assistants were very clear in their role, with all identifying exactly the same role. This was not echoed by the other professional groups, where uncertainty to their role was clearly evident.

The pharmacy students saw their role more to do with advice and counselling of both patients and healthcare professionals yet all other professional groups saw dispensing as their major role, although all groups thought pharmacists should ensure medicine safety, especially the physician assistant students (n=4/4).

Students were also asked what they expected to gain from being part of the week. By far the commonest theme to appear from the data was students wanting to gain a better understanding/awareness of the other professions roles (n=55). A further important theme to emerge was students desire to see how they could work together and how their profession integrated with others (n=26).

'What benefits they (the other professional groups) can offer to my patients so I can utilise this when in practice' (case 15 - adult nurse)

'To gain a greater insight of how multiprofessionals can work together' (case 82 -adult nurse)

A small number of respondents thought the week provided them with the opportunity to learn from others (n=8) or just meet and mix with other professional groups (n=8).

Readiness for interprofessional learning was measured using the RIPL survey (from Parsell and Bligh 1999). The survey measures the strength of students' beliefs in the benefits of IPE. The survey consists of 19 statements with 3 scales; scale one looks at effective teamworking and relationships with other professionals – 9 statements; scale two explores professional identity – 7 statements; and scale three roles and responsibilities – 3 statements. The findings to the statements are shown in Table III. For all statements, across the three scales, students displayed strong positive tendencies toward shared learning and no significant differences were noted for any statement between professional groups. Only one statement surrounding acquisition of more knowledge and skills was shown to have a large neutral response suggesting ambivalence toward this statement.

Sixty-two students completed the second survey. (Table I) Significantly fewer pharmacy students completed this survey and was attributable for the lower number of survey returns. This was because most pharmacy students had an examination at the same time as the conclusion to the IDSLW when surveys were being completed. Students were asked a series

Table III: Students Views toward Shared Learning

Statement (n=86, unless stated)	Strongly agree & Agree (n, %)	Strongly disagree & disagree (n, %)
Scale 1		
Team working skills are essential for all healthcare students to learn (n=84)	80 (95.2%)	1 (1.2%)
Learning with other students will help me become a more effective member of a healthcare team	67 (77.9%)	4 (4.7%)
Learning with healthcare students before qualification would improve relationships after qualification	64 (74.5%)	10 (11.7%)
Shared learning with other healthcare students will increase my ability to understand clinical problems	62 (72.1%)	4 (4.7%)
Shared learning will help me to understand my own limitations (n=85)	60 (70.6%)	5 (5.9%)
Communication skills should be learned with other health care students	60 (69.7%)	5 (5.8%)
For small group learning to work, students need to trust and respect each other	81 (94.2%)	1 (1.2%)
Shared learning will help me to think positively about other professionals	72 (83.8%)	3 (3.5%)
Patients would ultimately benefit if healthcare students worked together to solve patient problems	72 (83.7%)	6 (7.0%)
Scale 2		
It is not necessary for undergraduate healthcare students to learn together (n=85)	10 (11.7%)	58 (68.2%)
Shared learning with other healthcare students will help me to communicate better with patients and other professionals (n=85)	68 (80.0%)	5 (5.9%)
I don't want to waste my time learning with other health care students	5 (5.8%)	67 (77.9%)
I would welcome the opportunity to work on small-group projects with other healthcare students (n=85)	56 (65.9%)	8 (9.5%)
Shared learning before qualification will help me become a better team worker	67 (77.9%)	4 (4.7%)
Shared learning will help to clarify the nature of patient problems (n=84)	60 (71.4%)	3 (3.6%)
Clinical problem solving skills can only be learned with students from my own department	9 (10.5%)	61 (70.9%)
Scale 3		
I'm not sure what my professional role will be	6 (7.0%)	70 (81.4%)
The function of allied healthcare professionals (you) is mainly to provide support for doctors	8 (9.3%)	57 (66.3%)
I have to acquire much more knowledge and skills than other healthcare students	14 (16.3%)	42 (48.8%)

of questions relating to the week and the interaction they had with each other. (Table IV)

Clearly, all found learning from the other professional groups was useful and respect for each others role had increased. Students reported improved interactions with other professional groups, and just over half (54%) said their practical skills had improved as a result of the IDSLW. Perceptions too had changed toward each others role; this was most marked with the physician assistants and least for nurses. Students also had the opportunity to expand on their opinion of each other as a result of the week's experience via an open question. Thematic analysis showed that opinions of other professional groups of toward the nurses' role remained little changed, with patient care being the most commonly reported.

'clinical, emotional and psychological care of pateints (case 34 - midwife)

'nurses provide and organise care for patients (case 6 - physician assistant)

However, student midwives (n=6/19) and pharmacists (n=2/5) spoke of the nurses' role in patient assessment, and additionally midwives spoke of advocacy (n=2/19) and working within a multidisciplinary teams (n=5/19).

Opinion toward midwives, like nurses, had remained little unchanged. Care (n=21/39) and support (n=8/39) were the two major themes described. In contrast, opinion toward the physicians assistant role, and to a lesser extent the pharmacist role, had altered. Prior to start of the week people were unclear to the physician assistant role, however after the week, although uncertainty was still expressed (n=9/50), people spoke of assessment (nurses n=16; midwives n=2;

pharmacists n=2) and diagnosis (nurses n=5/30; pharmacists n=3/4; midwives n=1/16).

'carry out examinations on patients (case 5 - nurse)

'can diagnose and assess the patient' (case 35 - nurse)

'supports the doctor in diagnosis and management of patients' (case 62 - pharmacist)

Some (nurses n=7; midwives n=2) spoke of the physician assitants as a Foundation Year 1 doctor:

'from the scenarios they seem to be like Senior House Officers' (case 49 - midwife)

'when qualified they will be at the level of a junior doctor' (case 9 - nurse)

They also saw them as a member of the MDT (nurses n=5; midwives n=1)

'to work in collaboration with nursing staff, doctors and other members of the multidisciplinary team (case 13 - nurse)

Opinions of the other professional groups on pharmacy students had also changed. They now saw their major role was to provide a 'safety net' regarding medicines and prescribing:

Table IV

	Strongly agree & Agree (n, %)	Strongly disagree & disagree (n, %)
Learning from nurses was useful (n=32)	24 (75%)	2 (6.3%)
Learning from midwives was useful (n=40)	26 (65.0%)	2 (5.0%)
Learning from pharmacists was useful (n=53)	34 (64.2%)	7 (13.2%)
Learning from physician assistants was useful (n=53)	32 (60.4%)	9 (17.0%)
I feel students from the other courses could utilise my skills more now (n=61)	37 (60.7%)	13 (21.3%)
The week has changed my perception/understanding of nurses (n=30)	16 (53.3%)	7 (23.3%)
The week has changed my perception/understanding of midwives (n=41)	28 (68.3%)	6 (14.6%)
The week has changed my perception/understanding of physician assistants (n=54)	38 (70.4%)	10 (18.5%)
The week has changed my perception of pharmacists (n=54)	35 (64.8%)	9 (16.7%)
I now have more respect for other students studying different courses (n=62)	44 (71.0%)	3 (4.8%)
This week has improved my practical clinical skills (n=50)	27 (54.0%)	14 (28%)
This week has improved my interaction with different professional groups (n=50)	31 (62.0%)	7 (14.0%)

'Assess medication given, that it is given correctly and safely'' (case 1 - nurse)

'There to check all prescribed medication are appropriate; correct dose and to check for any interactions with other medicines' (case 46 - midwife)

Rather than simply dispensing medicines, although they still saw this task as a major role (nurses n=12; midwives n=9; physiotherapist n=2).

They acknowledged that pharmacists had an in-depth knowledge of medicines (nurses n=7/29; midwives n=3/18; physiotherapist n=1/6) and that they had a role as advice givers to healthcare professionals and patients (Advice to multidisciplinary team, nurse n=9; advice to patients, nurse n=3; midwives n=1):

'someone with whom practitioners liaise within clinical practice when querying medication - from a prescribers point of view and a staff nurse for reference on a ward. A very helpful tool which can be utilised by departments in primary and secondary care' (case 10 - nurse)

'advise doctors/patients on best drugs' (case 54 - nurse)

The final questions on the second survey centred on general opinion toward the week, as this was the first time the initiative had been conducted. Interestingly, students stated the scenarios did not relate to their own discipline enough (n=12), the real-life scenarios were too pressurised (n=8) and scenarios should place greater emphasis on a wider multidisciplinary approach (n=12), for example the inclusion of more health disciplines.

Discussion

Most students appeared to enter their respective profession with a relatively clear idea of what their role entailed. Nurses and midwives saw care and support to patients as core functions and physician assistants also saw patient care important whilst providing a support service to doctors. Pharmacy students however saw their role more ancillary (i.e. dispensing medications). This difference between pharmacy students and other groups may well stem from a lack of awareness of the pharmacists role and could possibly be compounded by stereotyping and poor knowledge. For example, nursing roles by members of the public are generally well understood with people being exposed to nurses, as a patient or via the media more commonly than pharmacists. It is probably true that most people are only exposed to pharmacists when receiving medication and until recently, pharmacy courses themselves have marketed themselves as a science-based course that specialises in medicines, and not one that necessarily puts patient care first. It is therefore not

too surprising that patient care did not feature highly in student pharmacists when they first started the course. The fact that physician assistant students had a clear understanding of their role despite the role being relatively new in the UK presumably stems from it being a degree level entry course and those entering on to the programme have taken time to explore the role before committing to a further three years of study.

Current opinion toward their role (except physician assistants) compared to when students started their respective courses had changed. Although nurses still saw care and support as fundamental to their roles they now talked in terms of holistic care, health promotion and advocacy, yet did not appreciate the academic side to their course. Student midwives, unlike any other group, were very aware of potential litigation with some voicing dissatisfaction toward their profession. The primary role pharmacy students saw for themselves, unlike the other groups, had changed. They now saw their role as more patient facing in giving advice and optimising drug treatment rather than that of a medicines supply function. These changes appear, for nurses and especially pharmacists, to reinforce the professional socialisation process that takes place during undergraduate study and practice based learning initiatives. (Cleminson and Bradford 1996)

Inculcation of professional values and ethics from educator and experiential role models does have a strong influence on student attitude. (Bridges, 1993; Chalmers et al., 1995; Duff, 2004) Student nurse perception of care is built on and taken further with the concepts of holistic care and advocacy, whereas student pharmacists stereotyped views of a pharmacist who just hands out medicines is dispelled and replaced with a much broader remit. Worryingly, student midwives seem very concerned with litigation; this may explain some student dissatisfaction toward their role. Why this group have these perceptions is worthy of further investigation.

When students spoke about the roles of the other professional groups, it was clear that the perception that nurses and midwives had about their own roles were echoed by the other groups. Greater ambiguity and confusion though was shown toward physician assistants and to a lesser extent the pharmacists' role. No professional group really understood what a physician assistant did; typical answers being 'don't know' or 'assist physicians'. This lack of knowledge is surely linked to this healthcare role being new to the UK. It is unlikely that any of the professional groups have come in to contact with a practising physician assistant during their undergraduate studies and therefore have no reference point from which to draw conclusions over their role. Regarding pharmacy, dispensing was seen as the primary role, except for the physician assistants who saw it as ensuring drug safety; these too were mentioned by the other groups but were secondary considerations. These changes in perception of each others' roles has also been observed in other interprofessional studies. (Hallin et al., 2009)

All students were enthusiastic to the notion of shared learning and saw positive benefits to working and learning with each other. These findings are consistent with previous studies. (Cooper et al., 2005; McNair et al., 2005) Data in this study though may be skewed as participating students were

volunteers and therefore the possibly exists that they were more predisposed to collaborative working. Nevertheless, as the IDSLW provided an opportunity for interdisciplinary learning in a safe simulated environment it is hoped this may have contributed to positive student expectations.

On completion of the IDSLW students completed a second survey. Opinion was sought from each group on their respective views of one another to see if attitudes had changed. As views on nurses and midwives prior to the week were very clear it was unsurprising that each groups' thoughts on the nurse and midwife role had remained unchanged. However, both pharmacy and midwifery student's spoke of patient assessment as part of the nurse role and no pharmacy student reiterated their opinion on drug administration duties. The major change occurred in other groups' opinion on physician assistants. Despite some uncertainty still existing, students now spoke of patient assessment and diagnosis, and having a role akin to a junior doctor. For pharmacy students, although others still saw dispensing medicines as a major role it was not classed as the main role. They now saw patient safety as the primary focus of pharmacists to ensure the safe use of medicines.

Students had the opportunity to give feedback on the week and three common themes emerged. Encouragingly, they wanted to have more healthcare professional groups involved in future events but felt the real-life scenarios were too pressurised and wanted greater focus from their own discipline incorporated into the scenarios. How these requests can be married together seems difficult. To involve more people from different disciplines yet have greater uni-professional focus seems somewhat contradictory in nature and may show a lack of student understanding regarding the ethos of interdisciplinary teaching. The fact that students felt too pressurised in the clinical scenarios was a surprise but probably does suggest that the real-life simulations were a good approximation to clinical practice. We would prefer students to have this experience in a controlled environment rather than a practice environment as they can learn from the event and reflect on how this could be used when faced with real patients.

Limitations

The IDSLW identified here enabled pre-registration healthcare students the opportunity to learn with, from and about one another. However, logistical problems were encountered in bringing students together from different disciplines that were taught on different sites and used differing academic timetables. This appears to be a common problem with interprofessional education initiatives. (Davidson et al., 2008) The fact that students were volunteers could have skewed their receptiveness to interdisciplinary learning. This was unavoidable as the week was not part of any of the four disciplines core learning and did not contribute to any final examinations.

Conclusion

This was the first time that healthcare courses at Wolverhampton University have collaborated in providing interdisciplinary learning. The positive views held by students on shared learning and the changes seen in their perception of others mean that the University will continue to develop ongoing opportunities to enable students and staff to work and learn together.

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