

## DRAFT PAPER DECEMBER 2013

**Title:** Assessing Interprofessional Competence Using a Prospective Reflective Portfolio.

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### Abstract 159 (draft)

The assessment of interprofessional competence or capability following interprofessional education remains essential if we are to ensure future practitioners who are able to work in teams and collaborate for improved health outcomes. Any IPE curriculum must design and describe its theoretical stance and this also applies to how learning will be assessed. This article reports on a study of the use of a Portfolio used by students across ten professions as a flexible framework for students to demonstrate their interprofessional learning throughout an entire IPE curriculum. Using a qualitative approach, content and thematic analysis, the completed Portfolios of a proportion of students from medicine, social work and speech and language therapy were read and a sub-set of students were interviewed to gain their perceptions of this assessment process. -The findings are discussed in the light of the value of reflection for learning to consolidate interprofessional understandings and how the different student cohorts write differently about the same learning events. Recommendations including how the Portfolio has since been modified to assure preparation for future practice are included.

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## Assessing interprofessional competence using a prospective reflective portfolio.

### Introduction

It is now widely recognised that assessments drive learning (Brown and Glasner, 2003), with assessments being a measure that learning has taken place. Assessments are therefore important for both the learner and teacher. In the field of health and social care it is acknowledged that training can expand professional development (Miller, 1990; Norcini *et al.*, 2011) and measures of competence are central to this process. Within pre-registration/undergraduate interprofessional education (IPE) there is growing agreement regarding what should be assessed, which relates to students developing interprofessional competence or capability ([Gordon & Walsh 2005](#); Canadian Interprofessional Health Collaborative [CIHC] 2010; [Combined Universities Interprofessional Learning Unit \[CUILU\] 2004](#); [Gordon & Walsh 2005](#); [Hammick, Freeth, Copperman & Goodsman, 2009](#); Curtin University, 2010; [Stone, 2010](#)). What is less clear, however, are the processes by which this can be achieved (Reeves, 2012). This relates to 'how' the assessment is integrated within curriculum design and the approach taken, 'when' learning should be assessed and 'who' (professional, academic, self, peer or patient) should make the judgement (Brown & Glasner, 2003). [PUK pre-registration guidance \(United Kingdom \[UK\]\)](#) proposes that students should be able to demonstrate 'competence for collaborative practice' using both formative and summative assessments (Barr & Lowe, 2012). IPE will have reached its main goal, referred to as its third level (Barr, 2013), when students lacking in interprofessional competence or capability fail to progress to

registration for their chosen profession. A robust assessment system ~~should~~must detect these students early, ~~even prior to entry into the professions,~~ and assure positive progress along the curriculum learning journey. This is particularly important as meaningful summative assessments may produce more effective practitioners and counteract the current concerns that many professionals are not capable of working with others in teams (Stone, 2010).

It is clear that the assessment process is central to the development of individuals' career profiles and pathways and ~~therefore must be~~must be 'fit for purpose' (Brown & Smith 1997; Biggs, 2002a), ~~must be~~ aligned to the curriculum (Biggs, 2002b) and ~~must~~ demonstrate that learning has taken place (Gibbs, 1998).

~~Agreement on a~~Assessment must be is integral to curriculum planning (Brown & Glasner, 2003) and the IPE curriculum is no exception (Anderson, Hean, O' Halloran, Pitt & Hammick, 2014). ~~Notably, however, t~~here are few IPE programmes that have articulated their assessment processes (Cooper, Spencer-Dawe & Mclean, 2005; O' Halloran, Hean, Humphries, McLeod-Clarke, 2006; Lingopink).

There are many potential reasons for this; IPE assessments are IPE ~~is still being endorsed within professional curricula specifications and agreed~~relatively new and is often not fully integrated within a curriculum and as such fails to be aligned within the assessment processes by professional bodies; new assessments take time to be endorsed within profession-specific programmes; IPE cohorts are large and the management of the assessment(s) are resource intensive as IPE cohorts are large; the different professions adhere to different professional body requirements underpinned by the different values-bases across the spectrum of health and social care programmes make

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consistency and comparability ~~of these assessments challenging is difficult~~; IPE is often presented as learning about professionalism which is difficult to assess although frameworks do exist (McNair, ~~Stone, Sims & Curtis~~, 2005); many IPE assessments are formative and not valued by students in the same way as summative ~~profession-specific~~ assessments (Barr, Helme, D'Avray, 2011). ~~In addition to this, few~~ ~~Of central importance is the idea that to be true~~ ~~adhere~~ to IPE values ~~and involve~~ patients/service users ~~should be involved~~ in the planning, design and ~~in giving~~ feedback ~~process~~ (McKeown, Malihi-Shoja, & Downe, 2010) ~~and yet there are few examples of patient involvement in IPE assessment processes~~ (Anderson, Ford ~~and~~ Thorpe, 2011).

If IPE is to gain its rightful place alongside the science subjects then it must be meaningful and count towards qualification (Hammick & Anderson, 2009). Ideally IPE assessment should offer students feedback on their personal development relating to their knowledge, skills and attitudes concerning collaborative interprofessional practice and should assess how they perform as part of a team. Although there are many ways to assess individual competence, ~~using~~ for example, case studies, reflective writing, exam questions, there are few agreements on assessing the individual within a team setting and there are clear tensions concerning different professional approaches ~~should this take place~~ in practice ~~assessment requirements~~ (Dunworth, 2007; Thistlethwaite, 2012).

~~To address some of the difficulties in assessment, a~~ personal Portfolio ~~which has~~ versatility, is ~~now~~ widely used as an assessment tool within health and social care

~~programmes within health and social care professional education as an assessment tool to facilitate on-going professional development in and additionally these tools~~ preparation ~~the students~~ for lifelong-learning (Harris, Dolan & Fairbairn, 2001; Driessen, van Tartwijk, van der Vleuten, Wass 2007; Tartwijk & Driessen, 2009; Buckley *et al*, 2009). Portfolios have been shown to develop students' critical and reflective writing and strengthen self-directed learning (O'Sullivan *et al.*, 2012). There is ~~a general~~ agreement that portfolios can be used ~~as assessment tools~~ to evaluate students' progress and, to an extent, the effectiveness of their learning (Harris, Dolan, Gavin, 2001; Boursicot & Roberts, 2006). -Importantly they can be used to assess a wide range of competence and as a summative sign off at the end of training (Davis, Friedman Ben-David, Harden, Howie, Ker, McGhee, Poppard & Snadden, 2001). ~~Portfolios~~~~They are also helpful because they~~ can include feedback from a range of different people who work alongside students such as patients, peers and practitioners incorporating the process known as 360° appraisal (~~Zenger, Folkman & Edinger, 2011; Ferrari, Vozzolo, Daneman & Macgregor, 2011; Calhoun, Rider, Meyer, Lamiani & Truog, 2009).~~

~~Hazucha, Hezlett, Schneider, 1993; assessment using 360 medicine).~~

In the UK, three universities in the South Midlands designed an integrated IPE curriculum, ~~informed by theory, for health and social care students (Smith & Anderson, 2008)~~ across ten professions ~~and designed using as the assessment tool a personal reflective Portfolio as the assessment tool (Smith & Anderson, 2008)~~ a personal reflective Portfolio. All students were given their Portfolios at the

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start of their training with clear guidance and directives on how to complete personal learning reflections after each IPE event (Table 1- IPE curriculum map). The Portfolio was designed for students to show what they had learnt and how the learning framed their thinking and intended behaviours towards their developing interprofessional competence (knowledge, skills attitudes and behaviours). In this study we report on research to assess the value of these Portfolios in measuring if learning had taken place and the perceptions of students on this assessment process research to examine the student written reflective. The research formed part of an evaluation strategy for the local IPE curriculum looking at the output or 'product' of the IPE curriculum (Biggs, 1993).

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INSERT TABLE 1 HERE ve pieces

to identify if learning had taken place and to ask students about the use of the Portfolio as an assessment tool. It was agreed that students should complete critical analysis using reflective writing of each interprofessional learning event. Students were expected to reflect on their developing knowledge, skills and attitudes and produce a prospective account of learning from early classroom to later practice learning. In addition the Portfolio could be used flexibly by all participating schools to meet professional body requirements and each school decided which pieces were assessed summatively and/or formatively. In this study we report on research to examine the student written reflective pieces to identify if learning had taken place and to ask students about the use of the Portfolio as an assessment tool.

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## Methodology

For this study we utilised a qualitative design in order to assess students' written Portfolio accounts (~~see table one~~) and explore their views regarding the use of this assessment tool. The paucity of research in this area indicated that a method concerned with exploration, novelty, complexity and process would be advantageous, therefore allowing for a full exploration of students' reflective accounts and experiences ~~using the Portfolio~~. This is consistent with the social constructionist theoretical approach (~~see~~ Burr, 1995) as we were concerned with the meanings and constructions generated by the students to provide an experiential view of engagement with the assessment tools.

## Method

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### *Setting and sample*

To ensure a range of accounts ~~and to promote transferability~~ we included students from four different health and social care ~~professions; disciplines. Students~~ qualifying ~~students~~ in 2010 from medicine (n=23~~00~~ ~~qualifying~~), speech and language therapy (n= 34 ~~qualifying~~), social work degree (n=35 ~~qualifying~~) (three year BA) and ~~s~~Social ~~W~~work masters (n= 60 ~~qualifying~~) (two year MA) ~~were considered~~. -Of these student cohorts a random sample of 25% was selected ~~using random number tables. Consistent with the literature it was agreed to randomly select 25% of the qualifying cohorts~~ (Krajcie & Morgan, 1970). ~~A~~To ~~ensure depth of analysis a~~ further sub-set was consented for semi-structured interviews. Sampling continued until data saturation was achieved (Guest, Bruce, Johnson, 2006) which is consistent for quality in this approach (O'Reilly ~~&~~ Parker, 2013).

### *Data collection*

The data collection for this study was in two forms; [i\)](#) the written portfolios of students and [ii\)](#) semi-structured interviews with a sub-corpus.

[i\)](#) The written student accounts in the Portfolios were anonymously photocopied and used as data. Each was read for understanding and subsequently coded and analysed using content analysis by two researchers (SD & ES) (Joffe & Yardley, 2004), to ensure intercoder reliability (Armstrong, [Gosling, Weinman & Marteau et al](#), 1997). A content framework was agreed and designed to code the data [using the breakdown of students writing for knowledge, skills and attitudes/behaviours](#) (Table [32](#)). The material was further reduced using unitisation to assess the number of reoccurrences of written data. The agreement on final themes considered only the exact words and those with similar meaning.

[ii\)](#) Semi-structured interviews ([Table 3-interview schedule](#)) were held with students in addition to the larger corpus of written work to add depth and meaning to the overall findings. Interviews were used to further explore their views of a wide range of participants, particularly where issues need more probing and greater interpretation (Cohen, Manion, & Morrison, 2007), which was enhanced by the inclusion of a pilot phase. The audio-taped interviews were transcribed verbatim and analysed using thematic

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analysis (Braun ~~& and~~ Clarke, 2006). The researchers focussed on meaning and content of the narrative.

### Ethics

Ethical permission to use students learning out-puts was part of a region-wide evaluation study in 2005 (COREC: 05/q2502/104). The ethical permission was re-affirmed by each participating universities ethical committees. Students were informed that participation was voluntary and the findings would only be used for the research purposes. It was made clear that the research would have no impact on their final grades or treatment by the universities.

### Results

#### Findings

Eighty-five Portfolios were obtained and analysed. Forty from medical students, fifteen, from speech and language therapy students (S-&-LT), fifteen from social work (SW) (BA) and fifteen SW (MA). Thirty-five students were interviewed (medical students=14; S&-LT=7; SW, BA=7; SW, MA=7). There was a wide age range (18-40 years) with more female students and many ethnic groups reflecting the population composition of the areas (Table 4).

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#### + **i) Written Reflections of Learning from the Portfolio**

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The findings are presented for each strand of IPE learning against the content analysis framework for knowledge, skills, attitudes/behaviour comparing the different professionals groups.

### Relating to knowledge**1.1 Knowledge**

A student's wrote more about~~students wrote about~~ 'new learning', knowledge gain, across all ~~the learning~~ strands, when compared with writing on skills and attitudes or behaviours. ~~There was more writing on knowledge themes than other elements of their competence.~~ Students' writing reflected the different learning events that they had accessed along their IPE curriculum journey.

In **Strand One** all students write about~~(class-room learning) they reported to have learnt about the constituents of team working~~, the roles and responsibilities of different professionals and the importance of communication~~patient/user-centered strategies for professional collaborative practice (Figure 1)~~. There was ~~some~~ variation across disciplines~~professions in relation to how this was important.~~ For example, medical students wrote about problem solving in a team, professional interdependency and stereotyping, while social work (BA) students wrote about a great deal on the application of theory to practice and understanding of the physical and psychological needs of service users. In addition S-&-LT students wrote ~~more about the importance of communication and professionals' roles and how they work within~~ case management ~~(see Figure 1)~~. Other variations related to ~~events with medical students and Social Work (MA) students reporting to have attended an event which focused in more details on the theory of team working~~

whereas social care students (S&LT and SW [BA]) reported the introductory event to be broader, highlighting an additional event relating to communication and case work. This explains how some students reflections mirrored each other e.g. SW (MA).

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INSERT FIGURE ONE HERE

In **Strand Two** (community practice learning), all students wrote about the importance of the complexity of communication for within interprofessional working and collaborative practice (Figure 2). Again there were some subtle professional disciplinary variations in focus, with medical students writing about community resources available to help patients while social work students (MA and BA) wrote about the psychological and social impacts on patients living with long-term conditions and understanding quality of life for service users, carer's needs and domestic violence. S & LT wrote more about the complexity of team working in the community (see Figure 2). This may reflect the particular concerns of the discipline in terms of their general aims of their practice. S&LT wrote about the complexity of team working in the community.

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INSERT FIGURE 2 HERE

In **Strand Three** (range of different events workshops and practice learning), students wrote in more progressed their knowledge writing in more detail about how professionals work together including exchange information, work

collaboratively ~~communication to address complexity of patient/service user needs~~ a and patient safety (Figure 3). ~~All students wrote about the importance of interprofessional work for addressing the complex needs of patients/service users and safe care. In these scripts students explored the importance~~ They wrote about of good communication and the exchange of information across professional boundaries ~~(Figure 3). There was little variation with medical students writing about hospital discharge with social work (MA) and the positive aspects of team working in its complexity~~ In this case there seemed to be little variation, with all disciplines reflecting the importance of communication.

Comment [mjo145]: Is this accurate to say?

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## 1.2 Skills

Of the skills, it was notable that a All students ~~struggled to write about their~~ wrote ~~less regarding~~ skill development ~~within the Portfolios~~. Individual students mentioned different ~~aspects of~~ skills, with only one strong theme emerging, that of communication (Table ~~Figure 4 5~~). In strand one ~~students~~ student's wrote that they had practiced communication but as they progressed through strands two and three, they wrote about active listening, open and closed questioning, and issues concerning how to advance interprofessional communication. This demonstrates the longitudinal development of communication skills ~~throughout the curriculum the process of learning.~~

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Leadership ~~as a skill was also reported in the portfolios and~~ was a strong theme particularly for medical students. This was evident in strand one and returned within emergency care on strand three. ~~Another main theme was how the IPL had developed student's in the practice learning where the interprofessional groups shared their learning with practitioner teams,~~ presentations skills ~~often completed by the student group at the end of learning episodes (strand two and three), were identified by S&LT and medical students.~~ In strand three SW (MA) students only considered skills for forward planning and gathering detailed information.

**Comment [mjo146]:** In places the point of the analytic point needs to be a bit clearer as sometimes it just feels a bit descriptive without a central point being made. The central points are important as they are what you come back to in the discussion. I can't always work out what the point of a paragraph is.

### 4.3 Attitudes

Of the attitudes and behaviour students ~~Evidence shows that professionals' attitudes towards their clients/patients can be an important feature in patient satisfaction and outcomes (reference). It stands to reason therefore that this is an element of training that is also important. However, students wrote less wrote positively about the value of interprofessional team working (Table 6), about their attitudes and future professional behaviour across all strands. Nonetheless there was a wide range of themes identified in relation to the broad category of attitudes (Figure 5).~~ All students in strand one wrote about respect for each of the different professions and by strand two had attitudes of greater confidence when learning interprofessionally. This theme was later considered by all students in strand three where they wrote about showing appreciation of other professionals and feeling confident about their professional role.

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**Comment [mjo148]:** Are you talking about attitudes to learning, attitudes to the discipline or attitudes towards clients?

Medical and SW (BA) students ~~in strand one,~~ wrote about their knowledge of stereotyping and considered their own attitudes and behaviours in challenging

unhelpful stereotyping in strand one. This was ~~also~~ picked up by medical students in strand two when writing about dealing with prejudice. In strand two medical students dominated all the identified themes writing about attitudes and behaviours from their practice learning including attitudes towards social inequalities in health and feeling confident working alongside others. SW (MA) wrote about attitudes to tackle health inequalities in strand three as the same learning was placed in a different place in their curriculum. In strand three S&LT and SW (BA) wrote about developing their positive attitudes towards collaborative working. ~~SW (MA) wrote about attitudes to tackle health inequalities.~~

**Comment [mjo149]:** Does this meant that these students did not talk about attitudes in strands one and two?

**Comment [mjo1410]:** Does this meant that these students did not talk about attitudes in strands one and two?

### In the final section of theFinal-section in the Portfolio

All Portfolios ~~had a final section to be~~ completed prior to finals, ~~students wrote-~~ more sophisticatedly considering ~~This was not part of the SW(MA) who completed a shortened course. The final writing pieces highlighted~~ the value of their learning journey (Table 7) ~~and inevitably were more sophisticated~~. In this section it was apparent that students were more aware of the realities of interprofessional working recognising the difficulties entailed, the skills required to ensure exchange of information and the strategies to deal with team working e.g.issues ~~such as~~ conflict resolution. All wrote about going into practice better prepared and with positive attitude towards interprofessional working and advanced awareness of the roles and responsibilities of their professional colleagues (Table ?).

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### ii) Student views on the use of the Portfolio

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To complement the portfolio data and to gain depth of understanding, thirty-five students were also interviewed (medical n=14; S&LT n=7; SW (BA) n=7; SW (MA) N=7).

The themes are reported with supportive quotes.

The majority **Portfolio was acceptable method of assessing IPE competence**

Most of the students found the mode of Portfolio study acceptable and easy to complete; reported that the clearly laid out instructions facilitated their use of this as a form of assessment.

1. *'It was very easy to complete the IPE portfolio, because all of the parts of it timetabled in well... components and strand events timetabled well into the course. It's strapped you into the IPE course and structured really well. They were tailored to allow you to write your reflections.'*

(Medical student 4)

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They staged progressive writing noted particularly the organisation and structure of this mode of assessment and reported that this allowed them to engage within their learning and helped them to gain personal insight on their own learning progress; training and participate in active learning "It's strapped you into the IPE course and structured really well." As part of this learning process it was evident that working on the Portfolio allowed for an insight into themselves.

2. *"Every minute of the day, there is so much to learn and there is not enough time to write things down immediately... Writing on portfolio was kind of giving feedback to yourself."*

(Social Worker student (MA) 4, UoL)

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What was particularly notable here is that the mode of study provided a mechanism through which students were able to take time to actually learn "was kind of giving feedback to yourself". In this way students therefore perceived that reflective writing

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was important because it provided them with opportunities to make sense of what

they learnt ~~from their IPE experiences. This is consistent with previous research~~

~~which illustrates that reflection is an essential component of active learning~~

~~(reference). Students felt reflective writing gave the chance to explore thoughts and~~

~~feelings in more depth, working through difficult or painful experiences, to and~~

~~develop self-awareness and fresh insights.~~

Comment [mjo1411]: Something like this to give some context

Comment [mjo1412]: Might be useful to show why that matters

3. *"I found it fine and it makes you realise how important it is to reflect and without this course it wouldn't be possible to do this."*

(SW (BA)ocial work student-DM-U 4)

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4. *"I suppose I got more practices in reflective writing. Learning more about involving and convincing. When I started I was more factual. I am better to open up a bit more. I gained this through writing the portfolio."*

(Medical- student 5)

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5. *"Thinking about my own reflective writing I realised that I needed to expand more, particularly keeping note of my thoughts. Self-reflection is important to promote good practice. For example, if a session does not go to plan, reflection is vital to pinpoint the areas in which the individual needs to develop so we can learn from it."*

(S&peech and Language-Therapy student- 1)

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~~What is illustrated by this theme is the acceptance of the portfolio as a reflective tool.~~

~~It is evident that students found the reflective process inherent in the portfolio mode~~

~~of assessment a valuable aspect of the learning process, encouraging them to take~~

~~time to consider the learning journey. While this aspect was considered positive,~~

~~there were elements of the Portfolio that were argued to be more challenging.~~

~~**The challenges of completing the Portfolio**~~

Comment [mjo1414]: I feel that this should be the final theme as it seems misplaced as theme 2

~~One of the main challenges experienced by students related to the organizational aspects of the Portfolio assessment. For example, students felt that the use of more prompts to remind them to complete their reflections after IPE events would have been helpful.~~

6. ~~*“We should have been encouraged to write things down as soon the activities are completed and reflect on our learning.”*~~

~~(Medical student 6)~~

~~It is clear from this medical student that there was a feeling that more guidance from tutors could have facilitated the assessment modality. This medical student reported that there is a need for “encouragement” in terms of writing things down at the time of occurrence.~~

~~Many students~~The data made evident that many of the students found it difficult to write about themselves; ~~in particular~~All students stated that they found it hard to reflect on their strengths and weaknesses and in some ways writing about ~~th~~ese aspects felt artificial. In these instances ~~therefore~~ students tended to focus on their ~~w~~eaknesses as it ~~felt uneasy~~was especially challenging to report ~~on~~ their ~~strengths~~; ~~positives~~.

7. ~~*“I felt comfortable in explaining my positive views towards my IPE training; however I found it difficult to discuss the negative aspects of my experience.....concerned that it may impact on the marking of my work.”*~~

~~(Medical student 1)~~

8. ~~*“It is harder to think about the things that you do well. We will be doing the portfolios throughout our professional career. It wasn't easy to write these skills down. We dwell on things more negatively. Communication with different professionals was easier for me to write down.”*~~

~~(Social Worker student (BA)- 4, DMU)~~

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In particular, they found it difficult to write about their skills, attitudes and behaviours. Many stated that analysing their emotions and feelings and personal responses after a learning event was challenging; stated that they have to write reflections in a descriptive way to start with.

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*9. "I needed to use the appropriate language and give a balanced view and give a spider diagram and put my thoughts together when I was writing about my attitude and professional behaviour. I found it hard rather than focusing on the feeling I focused on the events and how they affected me."*

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(Social work student 2, UoL)

*10. "Yes it was difficult, I don't find it easy to write about the skills that I attained and it is difficult to reflect and articulate how I changed as a person from a single experience. I found this difficult to articulate. At the end of the course they ask you to reflect, it is much easier to write it down but writing after the each section was difficult to write. I am not a great writer."*

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(Medical student 10).

Despite being difficult ~~Notably, however, although these~~ to write about feelings students reported ed that they had ~~that they found the task challenging, they did~~ illustrate strategies for managing the task. ~~U for example, using a "spider diagram" for example~~ was one method. ~~Nonetheless the difficulties these students encountered in the task of writing highlights an important issue for educators and is one that should be attended to~~

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*"I needed to use the appropriate language and give a balanced view and give a spider diagram and put my thoughts together when I was writing about my attitude and professional behaviour. I found it hard rather than focusing on the feeling so I focused on the events and how they affected me."*

(SW (MA)- 2)

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The graduate. ~~However we recognize that the graduate stud~~ students (from ~~medicine and social work)~~  were more confident about their reflective writing abilities referring to prior practice in other professional roles, which may reflect their

longer-term experiences in an educational environment or discipline-specific practices.

11. *"I qualified as a nurse prior to medicine and we did a lot of reflective work on the portfolios which were more intense. When I was a nurse... we reflected continuously. There were other mature students at the course who also shared the same feelings."*

(Medical student 9)

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### Portfolio is a good way of capturing IPE competence

The value of the Portfolio as a fair mode of assessment was general agreed by the majority of students. Many could be suitable perceive that collecting personal evidence and insight would be required throughout their future professional work. All felt mapping their on-going interprofessional understandings helped propel their learning:

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Generally students were in agreement Portfolios are useful way to reflect the IPE experiences and their personal and professional development.

12. *"The portfolio allowed me to consider the means by which I may continue my learning as a doctor which was beneficial."*

(Medical student -14)

*"I think IPE kind of changed some of my attitudes, like it gives you more awareness of other professionals and changes your values. Maybe IPE makes you realise there are roles that you are not aware of. I think reflection helps you to realise and change our attitudes and develop values. I developed more awareness of how our profession might link with other professionals and I think that was useful."*

(S&LT- 4)

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13. *"It is the part of the reflective process. I think IPE kind of changed some of my attitudes, like it gives you more awareness of other professionals and changes your values. Maybe IPE makes you realise there are roles that you are not aware of."*

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think reflection helps you to realise and change our attitudes and develop values. I developed more awareness of how our profession might link with other professionals and I think that was useful. When you go out to get a job or on a placement you know more about that profession."

(Speech and Language Therapy student 4)

14. "My reflection skills have improved enormously, sometimes I feel like I am too honest but I have found reflecting on my IPE portfolio invaluable because writing and thinking about what has happened really helps me make sense of a situation."

(S & L T Speech and Language Therapy student 5)

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There were concerns relating to how the work was assessed and feedback. Students were perhaps the most fundamental challenged by the for students was the final submission deadlines which often were close to final professional examinations:-

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15. "... I can say from my opinion and from various people that I have spoken to..., the timing of when we were expected to complete the IPE assignment was clashing with other exams. We should have made an effort to complete it before the exams."

(Social work student 1, (BA) DMU 3)

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16. "The hand-in date for the IPE portfolio was just before finals and this meant that it became a chore to get out of the way so I could concentrate on my exams, which felt more important..."

(Medical student 9)

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Deadlines and grading have long been recognized as central concerns for students (reference) and the alleviation of this is unlikely. However, the quotations recognize that timing was their key factor, with the Portfolio assessment modality aligning with other educational commitments "clashing with other exams" and "just before finals". Both students were in agreement that the

Comment [mjo1416]: Again I am not really familiar with this literature but you need to do something with the two quotations above.

~~Portfolio assessment would potentially have been less challenging if its deadline were "before the exams"~~

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The majority of students received feedback half way through their course feedback and this was important for them to help and shape their professional development.

*"Small amount of written feedback which is better to go back to it when you do the next reflection you can try to build on that. I also received the half way through written feedback which was very helpful. I certainly used it to improve my reflections."*

(Social work student UoL (MA) 6)

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*"I found the feedback received from previous work useful in informing me which areas I might be able to improve my skills."*

(Medical student 12)

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*"I received very comprehensive written feedback and I am very pleased with this as I will use this for the future references."* (Social work student DMU 3)

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Several students stated that peer assessment might be helpful way forward and some students suggested e-Portfolios.

*"I think it is always hard to do the evaluation on yourself rather than doing it on the others. Therefore, ... it might be a suggestion that we can assess each other each other's work particularly in team working. It is harder to think about your own strengths and it is easier to focus on the negatives but it is also harder to write the strengths on the portfolios."*

(Medical student 8)

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Some students suggested e-Portfolios.

Comment [mjo1417]: This doesn't fit with this theme as the theme is about the challenges – this is more of a solution

~~Portfolio is a good way of capturing IPE competence~~

~~The value of the Portfolio as a mode of assessment was general agreed to be suitable. Generally students were in agreement Portfolios are useful way to reflect the IPE experiences and their personal and professional development.~~

~~17. "The portfolio allowed me to consider the means by which I may continue my learning as a doctor which was beneficial."~~

~~(Medical student 14)~~

~~18. "It is the part of the reflective process. I think IPE kind of changed some of my attitudes, like it gives you more awareness of other professionals and changes your values. Maybe IPE makes you realise there are roles that you are not aware of. I think reflection helps you to realise and change our attitudes and develop values. I developed more awareness of how our profession might link with other professionals and I think that was useful. When you go out to get a job or on a placement you know more about that profession."~~

~~(Speech and Language Therapy student 4)~~

~~19. "My reflection skills have improved enormously, sometimes I feel like I am too honest but I have found reflecting on my IPE portfolio invaluable because writing and thinking about what has happened really helps me make sense of a situation."~~

~~(Speech and Language Therapy student 5)~~

Another concern was for more help and guidance immediately after the events  
One of the main challenges experienced by students related to the organizational aspects of the Portfolio assessment. For, for example, students felt that the use of more prompts to remind them to complete their reflections after IPE events would have been helpful.:

20. "We should have been encouraged to write things down as soon the activities are completed and reflect on our learning."

(Medical-  
student 6)

It is clear from this medical student that there was a feeling that more guidance from tutors could have facilitated the assessment modality. This medical student reported that there is a need for "encouragement" in terms of writing things down at the time of occurrence

## Discussion

These reflections relate to the value base of social work which focused their practice-based IPE reflections on elements relating to their core professional training

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### The content analysis of the individual student's reflective writing in Portfolios

following formal IPE events, demonstrated how each student framed their learning. Although more challenging in their early years, over time students were able to write about their new knowledge, skills practised and attitudes framed and behaviours to which they aspired. In addition, the interviews elicited student's views on this type of assessment. In the main Portfolios were perceived as a fair assessment that helped them understand more about reflection and prepared them for their future professional accountability. The assessment made them stop and think about their learning and in this way appears to have helped them consider what it means to be an interprofessional collaborative practitioner.

The study is limited to one cohort as faculty access to other professional portfolios was not possible, there is however, a comparison between different student professions which span the breadth of medical and social care perspectives. The social constructivist approach (Burr, 1995) using qualitative methods required self-reflexivity of the researcher and one member (SD) who conducted the interviews had no vested interest in the outcome of the study. Content analysis is intensive and challenging and although the sample sizes are small they are sufficient for claiming credibility in this data set. The study fails to assess the views of the IPE curriculum faculty members responsible for the reading and assessment of the Portfolio and we cannot therefore draw conclusions on the manageability of this assessment process.

Keeping a professional Portfolio is now a requirement of the professions for which these

students are being prepared, both in the UK and internationally (GMC [General Medical Council], 2012;

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HPCPC [Health Care Professional Council], 2013<sup>Hepe; international reference</sup>). The ability to self-reflect and analyse personal professional strengths and weaknesses at any given moment in time in any practice setting is now a key requirement at registration, as shown by this extract from the requirements of medical education in the UK, "*continually and systematically reflect on practice and whenever necessary, translate that reflection into action...*" (GMC, 2009 pg ). A key factor in the acceptance of this IPE Portfolio as stated by the students, relates, to students valuing the task as helping them to become reflective practitioners (Schön, 1983). Indeed students could perceive that in having to analyse using reflection following the IPE learning event they were advancing their learning as Dewey states: "*learning comes not from experience but from reflecting on experience*" (Dewey, 1938, pg ). Not only were the students considering reflection but there was clear evidence in their writing of how they were beginning to reflect from an interprofessional perspective, not just a uni-professional perspective (Wakerhouse, 2009). However the analysis clearly shows these IPE curriculum developers that students are challenged to write reflectively. Support throughout the process is required, especially for the undergraduate cohort, which must include timely feedback (Sandarsunders, 2010).

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The data demonstrates how each professional cohort wrote about similar and different aspects of the same learning event. The final coding framework shows the breadth of potential learning from the IPL and confirms that students reflect using their own professional lens. For example, social work students do refer to their anti-discriminatory value base while medical students to their possible expected leadership roles. This is only to be expected and sheds more light on the agreement of international competence statements which must accommodate a realistic interprofessional stance which accommodates professional divergence. To some

extent the research has affirmed the local competence framework that should be expected of students learning along this IPE curriculum map.

The challenges for the Portfolio are clearly articulated by the students. Deadlines and grading have long been recognized as central concerns for students (Brown & Glasner, 2003<sup>[reference]</sup>) and the work to alleviate this should be considered but it is often difficult within the confines of semester workloads~~alleviation of this is unlikely.~~

This research informs academics that the final outcomes for this IPE Portfolio should not ~~However, the quotations recognize that timing was their key factor, with the Portfolio assessment modality aligning with other educational commitments~~ “[clashing] with other exams” especially and “just before finals”. Both students were in agreement that the Portfolio assessment would potentially have been less challenging if its deadline were “before the exams”.

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## **Conclusion**

The research affirms the use of the IPE Portfolio as a reflective tool. It is evident that students found the reflective process inherent in the portfolio mode of assessment a valuable aspect of the learning process, encouraging them to take time to consider their learning journey. Reflective writing here does demonstrate interprofessional

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competence although the full element of these aspirations can only be fully confirmed when observed in patient-centred collaborative practice.

There were hints in this analysis which confirmed that while this work is formative it would be overshadowed by core summative work. As a result changes have been made to the status of the Portfolio which is now integrated within all professions uni-professional summative professional Portfolio requirements. In assuring the work is summative and counts towards qualification other elements are included such as 360° appraisal with feedback from practitioners and staff on team working in practice; this requires on-going research.

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## Declaration of interest

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the article.

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**Table 1: IPE curriculum map of learning events accessible to students**

<p align="center"><b>Strand One Learning Events</b></p> <p align="center"><i>Beginning of the curriculum Class-room based</i></p>	<p align="center"><b>Strand Two Learning Events</b></p> <p align="center"><i>Middle of the curriculum Practice-based</i></p>	<p align="center"><b>Strand Three Learning Events</b></p> <p align="center"><i>End of the curriculum In practice some are workshops</i></p>
<p><b>All undergraduate students:</b> One day theoretical event <b>All Graduates</b> entrants complete a similar event which recognises their experience in health care.</p>	<p>All students</p>	<p>All students although some of these events are attended by different students according to their training focus</p>
<p>Analysis of team functioning, stereotypes, roles and responsibilities of health and social care professionals. A case study analysis. Understanding about what makes for effective teams and drawing on theory of team working.</p> <p><b>Social care students at DMU</b> (S&amp;LT and social work) have access to an additional strand one event on communication suited to their professions.</p>	<p>Two day practice-based community course entitled <b>health in the community</b>. Students work in small teams and analyse the health and social care needs of a complex case. They also examine collaborative working to tackle poverty and disadvantage.</p>	<ul style="list-style-type: none"> <li>• <b>Patient safety</b> one day workshops.</li> <li>• <b>Interprofessional care planning:</b> a 4 day event on discharge planning on rehabilitation wards</li> <li>• <b>Listening workshops:</b> A one way workshop with service users on communication</li> <li>• <b>Mental health:</b> A 2 day event in which students complete an interprofessional care-plan for actual cases and analyse their needs.</li> </ul>

**Table 3: Interview Schedule**

1. Can we start by asking you about completing your IPE programme?
2. Did you find completing written reflections after the IPE events helped your learning?
3. How did you find writing about knowledge gained  
*Prompt: What is the most interesting/important knowledge learnt while you were completing the Portfolio?*
4. How did you find writing about your skills on the Portfolio?  
*Prompt: What is the most interesting/important skill you learnt while you were completing the Portfolio?*
5. How did you find writing about your attitudes on the Portfolio?  
*Prompt: What is the most important attitude you considered while you were completing the Portfolio?*
6. Do you know how your Portfolio was assessed?
7. Did you receive feedback after the completion of your portfolio?  
*Prompt: writing or verbal?*
8. The Portfolio assessment had a number of self-evaluation sections. Was it difficult to complete these sections?  
*Prompt: Can you explain why the easy items were easy for you to complete?*
9. What is your definition of learning?
10. Do you think a Portfolio is a good way of assessing this learning?
11. Do you think that Portfolio covers the overall picture?
12. Do you want to raise any other points about the completion of Portfolio?  
*Probe: Can you think of ways to improve the IPE Portfolio?*

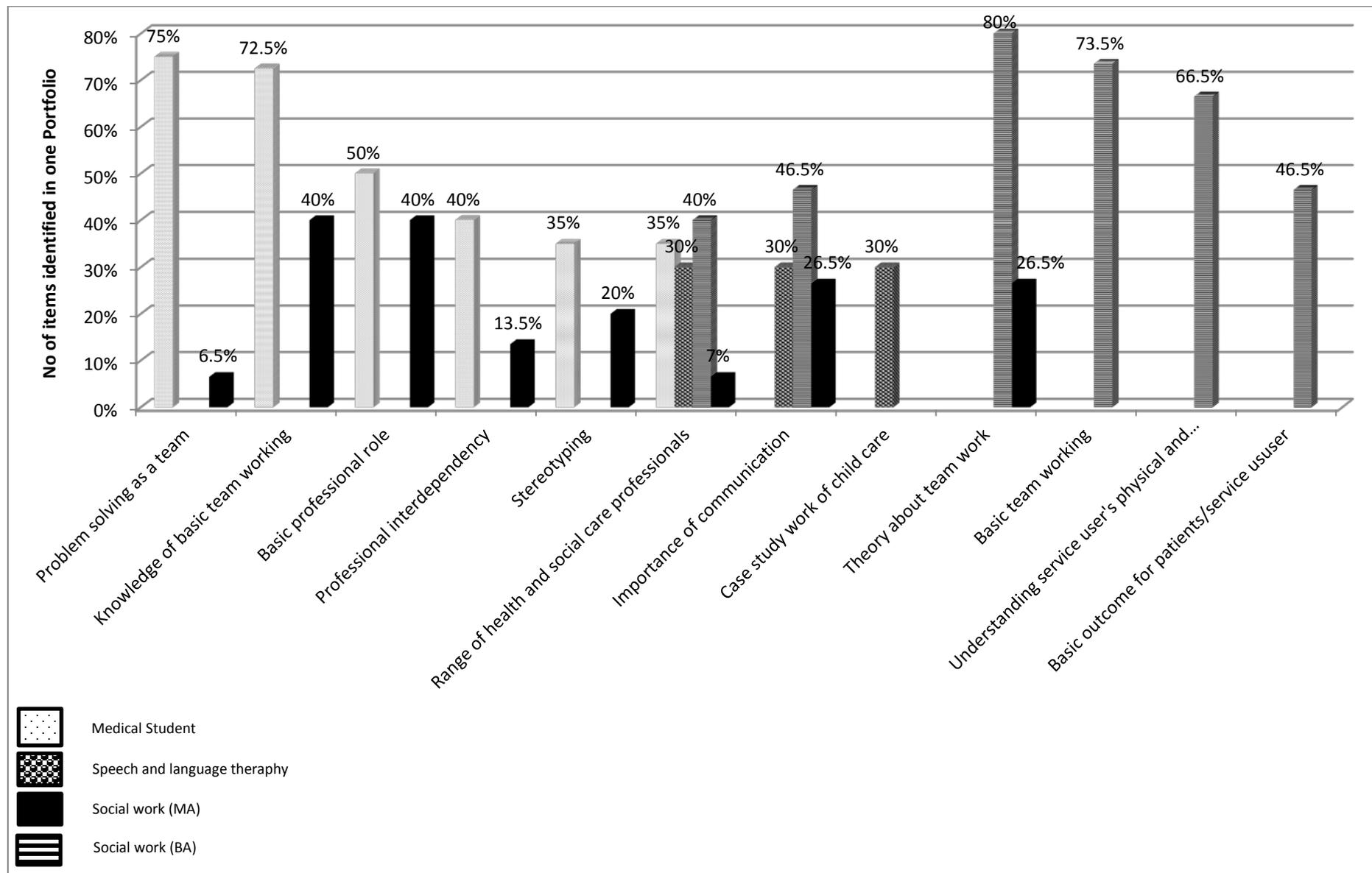
**Table 2: Coding Framework**

Themes Areas	Strand 1	Strand 2	Strand 3
<b>Themes which predominate</b>	<p><b>1a Knowledge</b>            1a.1 Problem solving as a team            1a.2 Knowledge of basic team working            1a.3 Range of health and social care professionals            1a.4 Range of health and social care professionals            1a.5 Theory about team work</p>	<p><b>1b Knowledge</b>            1b.1 Community resources and effectiveness            1b.2 Psychological and social impact on patient/service user            1b.3 Understanding the GPs' role            1b.4 Patients' needs, disability having impact on carers            1b.5 Co-ordination role between multi agencies</p>	<p><b>1c Knowledge</b>            1c.1 Importance of good communication/exchange of information            1c.2 addressing complex needs of patient/service user to deal with safety            1c.3 Discharge planning            1c.4 Positive aspects of team working            1c.5 Developing complex role</p>
	<p><b>2a. Skills</b>            2a.1 Basic communication skills (being a good listener)            2a.2 Learning from each other            2a.3 Creative approach to basic problem solving as a team            2a.4 Encourage all team members to express their views            2a.5 Planning ahead</p>	<p><b>2b Skills</b>            2b.1 Effective communication (open questioning, active listening)            2b.2 Reflect on positive and negative interactions            2b.3 Presentation skills            2b.4 Advanced leadership skills in group setting            2b.5 Group negotiation to deal with challenging situations</p>	<p><b>2c Skills</b>            2c.1 Advanced communication            2c.2 Self-analysis and reflections            2c.3 Gathering detailed information            2c.4 Developing other forms of communication            2c.5 Presentation skills            2c.6 Leadership in different situations (emergency)            2c.7 Preparation before team meetings to discuss patients</p>
	<p><b>3a. Attitude and Professional Behaviour</b>            3a.1 Positive attitudes towards team working            3a.2 Respect to each other            3a.3 Challenge the barriers            3a.4 Less apprehensive to work with others            3a.5 Challenge unhelpful stereotypes about others</p>	<p><b>3b. Attitude and Professional Behaviour</b>            3b.1 Showing appreciation and respect of other professionals            3b.2 Feeling confident with others            3b.3 Social and health inequalities            3b.4 Dealing with prejudices towards medical students            3b.5 Recognising personal prejudices            3b.6 Teamwork is an enjoyable experience            3b.7 Mutual respect to other professionals</p>	<p><b>3c. Attitude and Professional Behaviour</b>            3c.1 Recognising carers' needs/stress            3c.2 Challenging own role and practice            3c.3 Commitment to improve team work            3c.5 Showing appreciation of other professionals            3c.6 Demonstrates positive attitudes towards team working and collaborative practice            3c.7 Dealing with own beliefs / prejudices / conflicts towards other professionals</p>

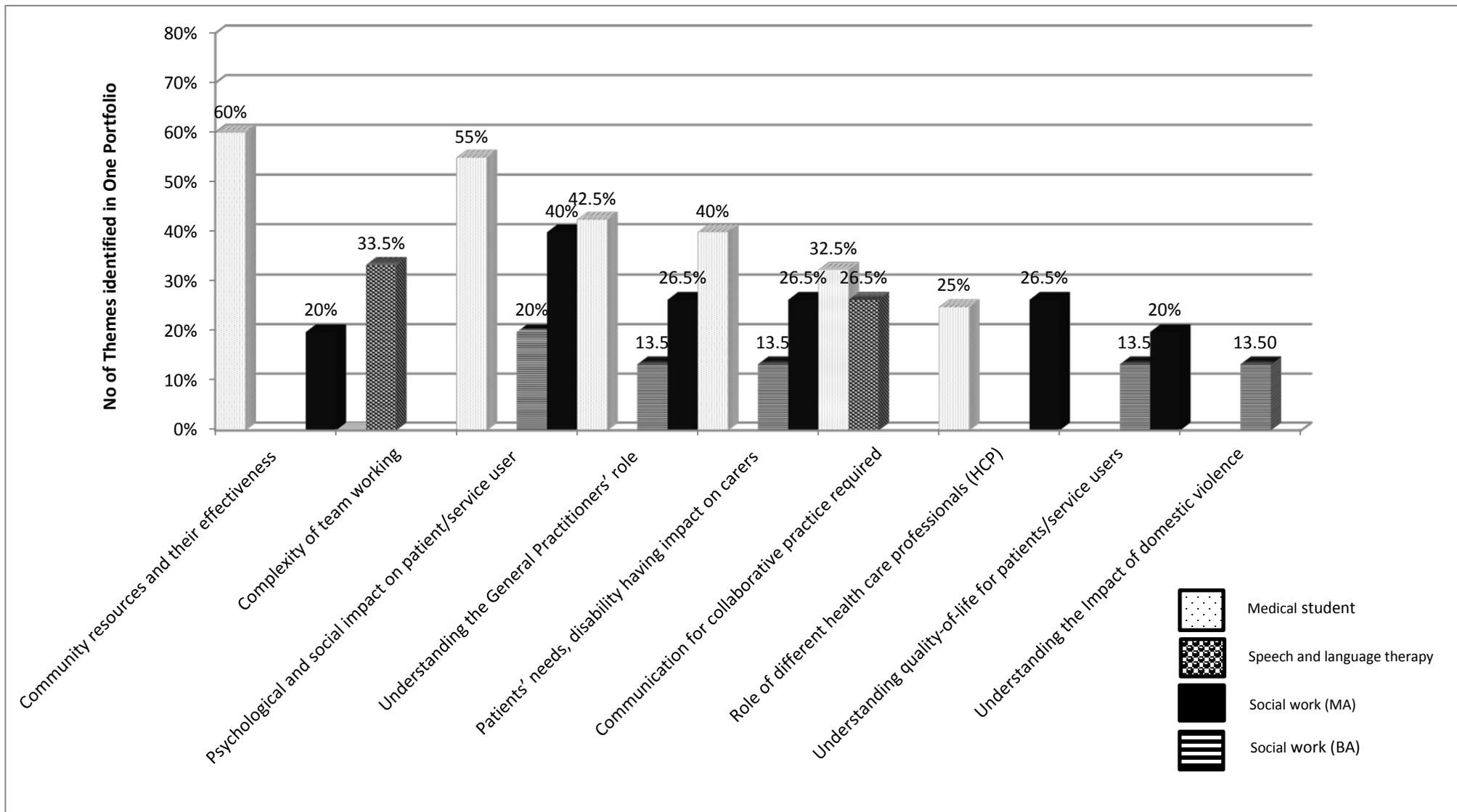
**Table 4: Characteristics of All Students**

<b>Characteristics</b>	<b>Medical Students</b>	<b>Speech and Language Therapy Students</b>	<b>Social Work Students (BA)</b>	<b>Social Work Students (MA)</b>
<b>Age (range 22-40 years)</b>	<b>Total=40</b>	<b>Total=15</b>	<b>Total=15</b>	<b>Total=15</b>
22-25	23	12	3	4
25-30	10	2	6	7
30-35	4	-	3	2
35-40	1	1	2	2
40+	2	-	1	-
<b>Gender</b>				
Male	12	1	4	2
Female	28	14	11	13
<b>Ethnicity</b>				
White British	28	14	6	8
African Caribbean	2		4	3
Indian/Asian	8	1	4	2
Chinese	2		-	1
Other			1	1
<b>Portfolio pass rate</b>				
Excellent	24	8	2	2
Merit	-	6	6	4
Satisfactory	16	1	7	2
Borderline Satisfactory	-	-	-	7

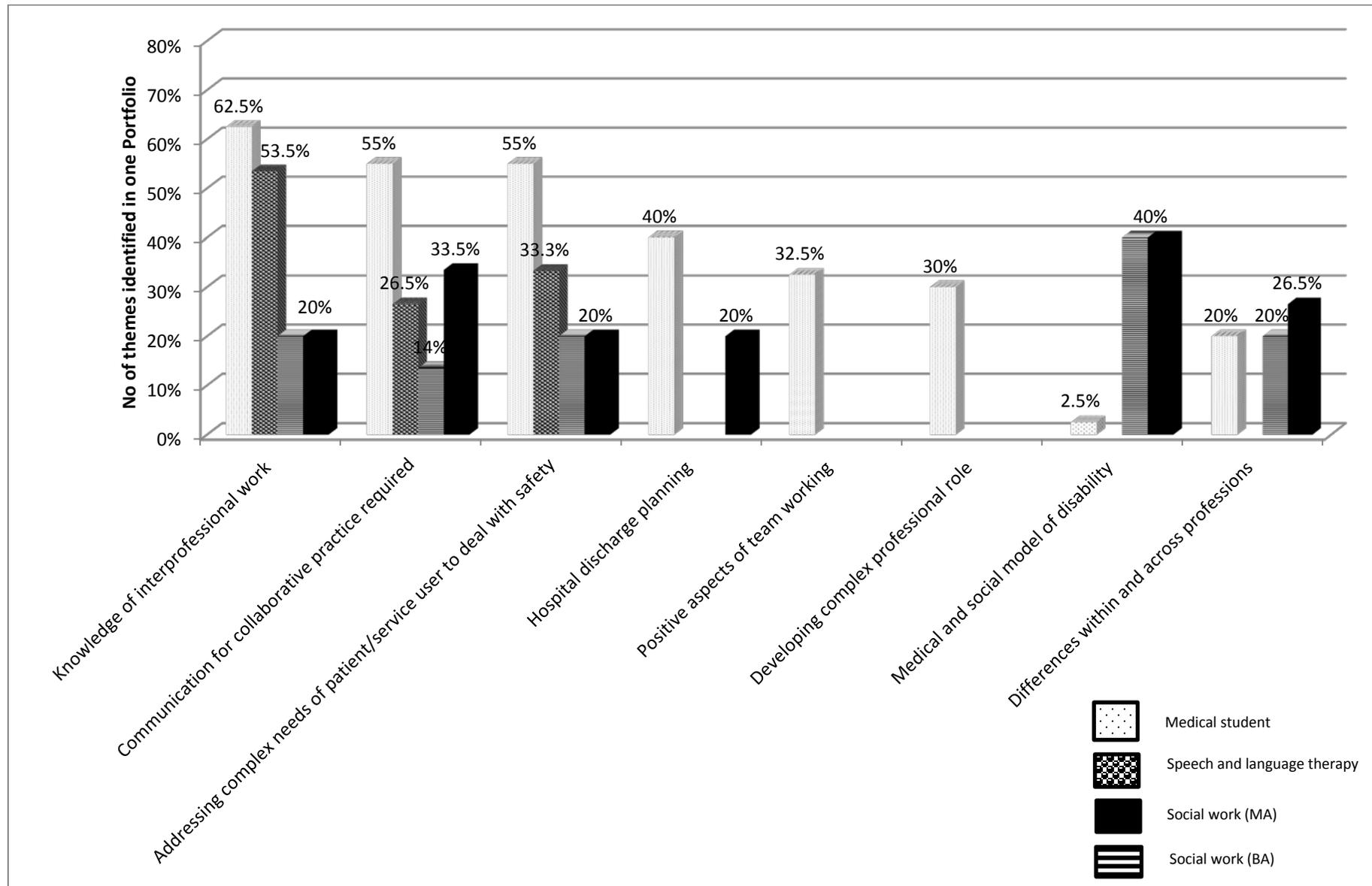
**Figure 1: Strand One - Knowledge Themes**



**Figure 2: Strand Two - Knowledge Themes**



**Figure 3: Strand Three - Knowledge Themes**



**Table 5: Strand One, Two and Three about Skills**

Themes Identified in one Portfolio	Students			
	Medical Students	Speech and Language Therapy Students	Social Work Students (BA)	Social Work Students (MA)
	<b>Strand One - Skills</b>			
Communication	62.5%	20%	46.5%	
Leadership	42.5%		6.5%	
Learning from each other	17.5%	6.5%		20%
Creative approach to basic problem solving as a team	17.5%	6.5%		6.5%
Encourage all team members to express their views	15%			
Planning ahead	10%	6.5%		
	<b>Strand Two - Skills</b>			
Effective communication (open questioning, active listening)	55%	80%	15%	20%
Reflect on positive and negative interactions	30%	40%		
Presentation skills	23%	14%		
Advanced leadership skills in group setting	18%	14%		
Group negotiation to deal with challenging situations	13%	7%	13%	7%
	<b>Strand Three- Skills</b>			
Advanced communication	70%	47%	14%	34%
Self-analysis and reflections	30%	27%		14%
Gathering detailed information	23%			34%
Presentation skills	15%			
Leadership in different situations (emergency)	13%	27%		
Challenging assumptions in constructive way	13%		7%	20%
Forward planning with team members	13%			40%
Analyse the problems as a team and find solutions	13%			14%

**Table 6: Strand One, Two and Three about Professional Behaviour and Attitude**

Themes Identified in one Portfolio	Students			
	Medical Students	Speech and Language Therapy Students	Social Work Students (BA)	Social Work Students (MA)
	<b>Strand One – Professional Behaviour and Attitude</b>			
Positive attitudes towards team working	50%		6.5%	
Respect to each other	42.5%	26.5%	46.5%	13.5%
Challenge the barriers	25%		13.5%	13.5%
Feeling confident	25%	13.5%		
Less apprehensive to work with others	22.5%			
Challenge unhelpful stereotype about others	22.5%		20%	
Dealing with stereotypes towards medical students	22.5%			
More open minded about other professionals	20%			
Non-judgemental approach towards patient/service users	7.5%	13.5%	13.5%	
Empathy to deal with sensitive and distressing subjects		13.5%		20%
	<b>Strand Two – Professional Behaviour and Attitude</b>			
Showing appreciation of other professionals	37.5%			20%
Feeling confident with others	35%			
Social and health inequalities	32.5%			6.5%
Dealing with prejudices towards medical students	22.5%			
Recognising personal prejudices	20%			
Teamwork is an enjoyable experience	15%			
Mutual respect to other professionals	15%			
	<b>Strand Three – Professional Behaviour and Attitude</b>			
Positive attitude towards the interprofessional patient care		40%	40%	
Recognising discrimination and health inequalities				33.3%
Recognising carers needs/stress	30%		20%	13.50
Challenging own role and practice	27.5%	26.5%		
Mutual respect	22.5%		13.5%	
Commitment to improve team work	22.5%			
Feeling confident about the professional role	20%	26.5%	13.5%	20%
Showing appreciation of other professionals	17.5%	20%	13.5%	26.5%
Increased non-judgemental practice	12.5%	6.5%		13.5%

**Table 7: Final Reflections**

<b>Themes Identified in one Portfolio</b>	<b>Medical Students</b>	<b>Speech and Language Therapy Students</b>	<b>Social Work Students (BA)</b>	<b>Social Work Students (MA)</b>
	<b>Final Reflections -Knowledge</b>			
Advanced Team work	77.50%			
Advanced awareness of the roles of other professionals	72.50%			20%
Work with others to improve patient outcomes and achieve common goals	57.50%	20%		
Professional Identity	45%	20%	13.50%	20%
In-depth coordination between professionals leads to better outcomes	45%		20%	20%
Patient centred care planning and involvement of others	35%			20%
Patients' safety	27.50%			
Negative aspects of team working	27.50%			
Advanced interdependency between team members	25%	13.50%		
Life Long learning	22.50%		13.50%	
Positive aspects of team work	22.50%			
Good foundation as a junior doctor	20%			
Putting theory into practice	17.50%			
Improved quality of life for patients	12.50%		13.50%	
Understanding differences of opinions	12.50%		13.50%	
Patient's social, physical and psychological and spiritual needs	12.50%			
Excellent, appropriate and various ways of communication		33.50%		20%
Active listening skills		26.50%		
Leadership		20%		
	<b>Final Reflections - Skills</b>			
Excellent, appropriate and various ways of communication	70%	13.50%		
Strong leadership	32.50%			
Active listening skills	25%	20%	20%	26.50%
Conflict resolution to fix problems	20%			
Learning from each other	17.50%	13.50%	20%	
Advanced problem solving	12.50%			

Empathy to deal with sensitive and distressing subjects				20%
<b>Final Reflections - Professional Behaviour and Attitude</b>				
Appreciation of other professionals	55%			26.50%
Demonstrating positive attitudes towards team working	47.50%	33.50%	20%	13.50%
Showing respect and appreciation	42.00%	13.50%		
Dealing with own beliefs/prejudices/conflicts towards others	45%		20%	13.50%
Feeling confident about the professional identity	27.50%	26.50%		13.50%
Showing mutual respect regardless of status/ power	25%			
Willingness to improve skills for the future	20%			
Being sensitive to patients' circumstances	17.50%		13.50%	
Having approachable manner	12.50%	13.50%		13.50%
Non-judgemental approach toward patient/service user			26.50%	