The measurement of stereotypes in the evaluation of Interprofessional Education

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INTRODUCTION

This chapter is directed at evaluators using student stereotypes of health and social care (HSC) professionals to understand the processes and outcomes of Interprofessional Education (IPE) programmes. The chapter focuses on the definition of stereotypes and justifies their inclusion in an evaluation from a theoretical, evaluative and curriculum perspective. This is followed by a summary and discussion of existing means of measurement used in IPE and some practical implications to this endeavour. The chapter concludes with the findings of some existing evaluations.

WHAT ARE STEREOTYPES

Stereotypes are ''social categorical judgment(s) . . . . of people in terms of their group memberships'' (Turner, 1999), p. 26). These can be negative judgements leading to prejudiced behaviours towards other social groups (the outgroup). Negative stereotypes may generate false or negative expectations of the outgroup which may become reality through processes of self-fulfilling prophecy (Hilton & von Hippel, 1996). For example, other HSC professionals may stereotype doctors as poor team players. Their interpretation of an individual doctor's actual behaviours may subsequently be coloured by these expectations (Hean *et al.*, 2006a). Negative expectations also have an impact on the target's self image and output. Negative perceptions in public stereotyping of nursing, for example, may influence the development of poor collective self esteem, job satisfaction and performance in these professionals (Takase *et al.*, 2002).

Stereotyping, as a natural human process, is not always a negative activity (Haslam *et al.*, 2002). Individuals may use their established stereotypes as a valid mechanism whereby they make sense of their interactions with other groups with minimum energy expenditure (Haslam *et al.*, 2000; Haslam *et al.*, 2002). In the health arena, specifically, the generalized and often accurate views practitioners hold of a particular patient group may guide them in an appropriate manner when facing an individual from this patient group for the first time (Kirkham *et al.*, 2002; Hean *et al.*, 2006a).

If stereotype use and formation is natural, it is anticipated that HSC students will hold both positive and negative stereotypes of other HSC professional groups. These may be learnt through their own experience of these groups (e.g. as a patient), vicariously (e.g. through the media) (Hallam, 2000; Conroy *et al.*, 2002) or through the socialisation processes that is professional training (du Toit, 1995).

WHY USE STEREOTYPES IN IPE EVALUATION

If HSC students hold stereotypes of other professional groups, why specifically should these be measured in IPE evaluations and changes monitored over the programme's duration? This question can be answered at a theoretical, evaluative and curricula level

A Theoretical perspective

It has been argued that IPE programmes should be introduced early into students' undergraduate programmes to combat negative stereotypes before these develop or become ingrained (Leaviss, 2000). However, more in depth theoretical justification is found through consideration of the contact hypothesis and social identity theory.

Contact Hypothesis

Stereotype change is a central component of the contact hypothesis. This theory was translated into the IPE arena by Carpenter and colleagues ((Hewstone *et al.*, 1994; Carpenter, 1995b, 1995a; Carpenter & Hewstone, 1996; Barnes *et al.*, 2000; Carpenter *et al.*, 2003). It provides practical solutions to overcoming prejudice between different social groups and maintains that positive change in intergroup attitudes will be promoted through encouraging conflicting groups to interact with one another (Allport, 1979). However, interactions must be governed by set conditions which include that groups have common goals, are aware of group similarities and difference and that interactions take place within a positive and cooperative atmosphere (Brown *et al.*, 1986; Hewstone & Brown, 1986; Barnes *et al.*, 2000).

IPE provides an opportunity for students of different professional groups to interact under controlled conditions that is conducive to positive changes in their intergroup stereotypes (e.g. (Barnes *et al.*, 2000; Carpenter *et al.*, 2003). This may influence the way HSC professionals will interact in the future.

Social identity theory

Group interactions are governed by more than one group simply holding negative/positive stereotypes of another. Intergroup comparisons are important also. Social identity is the identification of self in terms of one's own social group (ingroup) rather than of another group (outgroup) (Turner, 1999). In IPE, the social group in question is the professional group and it is assumed students derive a definition of self from their membership of a particular professional group. When student of different professions interact, they may make comparisons and draw distinctions between the characteristics of their ingroup (autostereotypes) and those of other HSC groups (heterostereotypes) (Tajfel *et al.*, 1971; Carpenter, 1995b, 1995a; Barnes *et al.*, 2006). This comparison is called intergroup differentiation; (Tajfel *et al.*, 1971). On the one hand, if students fail to see their group as distinctive, then competitiveness and poor group interrelations result (Branscombe *et al.*, 1999; Zãrate & Garza, 2002). On the other hand, some perceived similarities between HSC groups may be desirable as these develop feelings of empathy and a sense of common identification (Stephan & Stephan, 1984; Pettigrew, 1997; Hean *et al.*, 2006b). An appreciation of both similarities and differences between professional groups is recognised as a necessary condition of contact and stereotype change during IPE initiatives (Barnes *et al.*, 2000).

An evaluation perspective

In addition to the theoretical justification for choosing stereotypes in an evaluation, it can also be justified in terms of the evaluation model chosen. Several evaluation models exist but it is largely an adaptation of the Kirkpatrick's evaluation model that has found favour in IPE evaluations (Freeth *et al.*, 2002; Carpenter *et al.*, 2003). This focuses on educational *outcomes* of IPE. At a micro level, student reactions to IPE and change in their attitudes/knowledge/skills/behaviours are evaluated. At a macro level, the impact of IPE on the organisation, in terms of improved cross agency communication, working and referral and

the benefits accrued to clients are considered (Kirkpatrick, 1967; Allport, 1979; Freeth *et al.*, 2002). Stereotypes and stereotype change is part of the micro level of analysis and a representation of student attitude/perceptual change.

A curriculum perspective

Evaluators may choose to measure stereotype change because this is an explicit learning outcome of the IPE curriculum. Curricula delivered to undergraduate medical, nursing and social work students (Hewstone *et al.*, 1994; Carpenter, 1995b; Carpenter & Hewstone, 1996) and members of community mental health teams (Barnes *et al.*, 2000; Carpenter *et al.*, 2003) are examples of where the contact hypothesis, and putting in place conditions necessary for stereotype change, are the corner stone around which IPE curricula has developed. Stereotype change naturally formed part of the evaluation strategies of these programmes.

Stereotype change need not be the key focus of the curriculum for stereotype change still to be relevant. A Common Learning curriculum (O'Halloran *et al.*, 2006) offered to undergraduate HSC students, for instance, mentions stereotypes only tangentially in the objectives, stating that HSC undergraduate students should develop an "understanding (of) interprofessional practice …..by looking at professional roles and stereotypes and the composition of health and social care teams (O'Halloran *et al.*, 2006); p11)". Stereotype measurement still formed part of this programme's evaluation (Hean *et al.*, 2006a; Hean *et al.*, 2006b), the inclusion of this variable being justified along theoretical and evaluation lines.

WAYS IN WHICH STEREOTYPES CAN BE MEASURED

As the rationale to evaluate student stereotypes may vary, so too may the ways in which stereotypes are measured. For instance, an evaluator may measure students' ratings of:

- overall attitude towards a professional group;
- HSC professional groups on a range of specific characteristics;
- confidence in their ratings of a group on a range of stereotypical characteristics;
- the importance of a range of stereotypical characteristics;
- their propensity to stereotype a group on these characteristics.

The latter three approaches are less well developed although represent an attempt to account for the complexity of this domain.

Overall attitude to another professional group

A generic slant to stereotype measurement sees students rating their overall attitude towards another professional group on 7 (Carpenter, 1995b; Carpenter & Hewstone, 1996) or 5 point scales (Tunstall-Pedoe *et al.*, 2003)(Table I).

Table I: Measurement of overall attitude to professional group (Carpenter, 1995b; Carpenter & Hewstone, 1996)

A. My overall attitude to social workers is:

Strongly						Strongly
positive						negative
1	2	3	4	5	6	7
(	(	(	(	(	(	(

|Or |
|B. I have an overall positive attitude to radiography students" (Tunstall-Pedoe et al., 2003) |

Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree
1	2	3	4	5
(	(	(	(	(

This is a general affective measure of the student's feelings towards a professional group. Evaluators need to be clear whether they are measuring students' stereotypes of a professional group as a whole (A, Table I) or if attitudes towards a group of students undergoing particular professional training is the focus (B, Table I). It is conceivable that if the former, stereotype change may be harder to achieve than if attitudes to the student group is monitored, a group with whom respondents have more personalised and direct contact.

Ratings of specific characteristics

(Fishbein & Ajzen, 1975) in seminal writing on relationships between attitudes, beliefs and behaviours propose that an individual's overarching attitude to an object is developed from an amalgamation of a series of beliefs they hold of this object. Students' overall attitude towards a professional group will, therefore, be developed through the combination of their beliefs about it. In accordance, a second approach to measuring stereotypes considers these individual beliefs by asking students to rate professional groups on a set of specific characteristics. Likert, semantic differential and visual analogue scales may be used to record these ratings.

Likert scales

(Carpenter, 1995a) (Table II) generated a list of characteristics perceived by students as typical of nurses and doctors. Final year medical and nursing students rated professional groups on this list using a 7 point Likert scale ranging from very high to very low. This list has subsequently been employed with first year student doctors, pharmacists, dieticians, physiotherapists and nurses ((Hind *et al.*, 2003)and with first year student doctors, radiographers, physiotherapists and nurses (Tunstall-Pedoe *et al.*, 2003).

Table II: List of stereotyped characteristics used with undergraduate students (Carpenter, 1995a)

|Detached |
|Good communicators |
|Confident |
|Do-gooders |
|Dedicated |
|Arrogant |
|Caring |
|Dithering |

An alternative list of characteristics, or part thereof, (Table III, IV and V) have been employed by other authors (Carpenter & Hewstone, 1996; Barnes *et al.*, 2000; Carpenter *et al.*, 2003). This list is less generic and more specific to the workplace (e.g. autonomy and leadership). Characteristics are presented in a

neutral format if compared to the overtly positive/negative adjectives in Table II. For example, students rate communication skills of a professional group (Table IV) rather than rating the group as good communicators (Table II). These items have been employed with final year medical and social work students (Table III) as well as qualified members of a community mental health teams (psychiatrists, psychologists, nurses, social workers) participating in a career development IPE programme (Table IV and Table V).

Table III: List of characteristics used with final year undergraduate students (Carpenter & Hewstone, 1996)

Breadth of life experience
professional competence
academic quality

Table IV: List of characteristics used with qualified HSC professionals(Barnes *et al.*, 2000).

Academic rigour
breadth of life experience
Communication skills
Interpersonal skills (e.g., warmth, sympathy, communication)
Leadership
Practical skills
Professional competence

Table V: List of characteristics used with qualified HSC professionals (Carpenter *et al.*, 2003)

Academic rigour
Communication skills
Decisiveness
Interpersonal skills
Leadership
Practical skills
Professional autonomy
Professional competence
Team player

Finally, an adaptation of scales described in Tables III, IV and V was utilised by (Hean *et al.*, 2006a)(Table VI) to collect baseline data from first year student doctors, midwives, nurses, pharmacists, physiotherapists, occupational therapists, audiologists, social workers and radiographers.

The validity and reliability of these measures, as used originally with qualified professionals was questioned. Students near the end of their training (Carpenter, 1995b, 1995a) or at a postgraduate level (Carpenter *et al.*, 2003) are already familiar with other HSC professionals through placement or work experience. They are likely to have established views on the attributes of other professional groups. This form of measurement may not be appropriate for first year students who do not have the knowledge of the roles, responsibilities or skills of their own let alone other professionals. Less experienced students' views may therefore be more transient. This may influence the reliability of data they give at the baseline stage of an evaluation (Hean *et al.*, 2003). Hence, items in Table VI were piloted in a panel of academic , HSC practitioners and early undergraduate students of all the participating professions. This validated the format, language and content of the instrument for the lesser educational level and vocabulary of undergraduate students and for the wide number of professional groups involved.

Piloting showed that students at this level preferred the neutral and work based characteristics (Table IV

and V) over the value laden, generic adjectives in Table II. Students displayed resistance to the stereotype questions generally, however, seeing these as an explicit request to stereotype other professional groups. They saw this as contrary to the ethos of IPE (Hean *et al.*, 2003). These reactions may be particular to undergraduate or younger students, more idealistic or less hardened to the ”reality” of poor working relations. Their resistance may be minimised by not using the word *stereotype* explicitly in instructions within a questionnaire and replacing this with the less confrontational *opinion* or *attitude*. Using the more neutral format for questions (see Table III, IV, V and VI) may also may cause less resistance than if the more value laden adjectives are employed .

Student reactions to stereotype questions should not be wasted, as facilitators may use these to help students reflect and explore their own and others' preconceptions of other professions and answer questions such as "What are the actual characteristics and roles of a profession? Are different values placed on these different characteristics and roles (Hean *et al.*, 2006a) and how might our attitudes of other HSC professionals influence intergroup working behaviours?"

The stability of responses to items in Table VI was tested over a 2 week period and those that were not reliable over time at a 5% level were removed. Most items were of an acceptable reliability and were transferred directly from the original scale(Barnes *et al.*, 2000). Items, however, where difficulties were observed were adjusted or removed. For example, the characteristic "breadth of life experience" showed a lack of stability. This may be because students, early in their careers, with limited experience of other professions and professional placement, have not recognised life experience as a relevant attribute or one on which they have any form of established opinion. The most reliable stereotype questions were those items on academic ability. If it is assumed that item stability stands as proxy for a well formed opinion, it may be hypothesised that consistent views have formed on this academic ability because students have recently completed a selection procedure to enter the university based almost entirely on their academic performance at A-level. The least reliable items related to the ability of the professional to work independently and professional competence. These professional attributes are further removed from neophyte students' potential field of direct experience and hence produce less reliable responses (Hean *et al.*, 2003).

Table VI: List of characteristics with first year undergraduate students (Hean *et al.*, 2006a; Hean *et al.*, 2006b)

Academic ability
Professional competence
Interpersonal skills (e.g. warmth, sympathy, communication)
Leadership abilities
The ability to work independently
Practical skills
Confidence
The ability to be a team player
The ability to make decisions

Semantic differential and visual analogue scales

Other characteristics on which professional groups have been rated in the IPE literature can be viewed in Table VII and VIII. Like the characteristics in Table I, these characteristics appear more generic with a lesser professional focus. (Mandy *et al.*, 2004), for example, measured stereotypes by asking first year physiotherapy and podiatry students to rate their agreement with a range of opposing adjectives presented in a semantic differentials format (Table VII).

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Table VII: Sample of bipolar adjectives used with undergraduate students (Mandy *et al.*, 2004).

Sociable					Exclusive	
1	2	3	4	5	6	7

Strong						Weak
1	2	3	4	5	6	7
Interpersonal						Impersonal
1	2	3	4	5	6	7
Attractive						Repulsive
1	2	3	4	5	6	7

A similar approach uses 10cmVisual analogue scale is used to record ratings (Lindqvist *et al.*, 2005) (Table VIII). Undergraduate students rated a range of professionals including social workers, general practitioners and occupational therapists. A more detailed discussion of this measurement tool can be seen in Chapter 12.

Table VIII: Sample of alternative bipolar adjectives used with undergraduate students (Lindqvist *et al.*, 2005).

Caring					Non caring
[pic]					
Sympathetic					Non sympathetic
[pic]					
Poorly paid					Well paid
[pic]					

Which scale to choose?

No study has explicitly compared and contrasted the benefits of one form of stereotype measurement over another. Until this occurs, the choice of measurement relies on evaluators' own judgement in which a match between a measurement and the particular IPE context is made. Evaluators should consider their own student context and decide whether:

- the instrument has been validated with students of the same educational level (e.g. first year, final year, qualified professionals);
- the instrument has been validated with students of the same professional group;
- the characteristics rated are applicable to their own evaluation? Are perceptions of more generic characteristics such as caring, detached, arrogant, (Table II, VII and VIII) more likely to be changed by the IPE curriculum or are the more professionally based characteristics (e.g. professional competence, the ability to work independently (Table III to VII) more relevant?
- other studies have used this form of measurement, in order that the findings of their evaluation may be directly compared and contrasted with others in the field.

Importance of each characteristic being measured

IPE studies have concentrated almost entirely on simple ratings of a professional group on a range of specific characteristics. However, stereotypes are not unidimensional constructs. (Carpenter *et al.*, 2003), for instance, consider a second dimension: the *importance* students place on each characteristic. Stereotypes of characteristics perceived as more important may have a greater effect on intergroup interactions than characteristic assumed to be less so. (Carpenter *et al.*, 2003) found that students rated interpersonal skills, professional skills and being a team player as most important and academic rigour and leadership skill as least important.

Propensity to stereotype

(Hewstone *et al.*, 1994) also recognised the multidimensional dimension of stereotypes. They included in their evaluation measures of confidence with which stereotypes are held. If more positive stereotypes are reported with greater confidence, this was perceived as a positive outcome of the programme. Subsequently, a further stereotype dimension was identified, the dimension of *perceived*

variability (Hewstone & Hamberger, 2000; Hean *et al.*, 2003). This is the degree to which students perceive a professional group to be homogenous on a particular stereotyped characteristic. For example, students may rate nurses highly on being *caring.* However if asked to what percentage of nurses this high rating applies, they may believe that, whilst the vast majority of nurses are caring (say 75%), there are a significant minority (25%) that are not. The inclusion of this dimension has potential to alleviate students' resistance to stereotype measurement, by enabling them to express the degree they believe a characteristic applies to the group as a whole (Hean et al., 2003). This stereotype dimension still needs to be fully explored in the IPE arena..

Practical challenges in measuring stereotypes

Apart from the choice to be made on which scale or dimension to use, there are some practical challenges to stereotype measurement also. The first relates to the questionnaire format.

Formatting of questions

As the relevance of IPE becomes more recognised in HSC training, a greater diversity of student professional groups becomes part of these programmes. When only two or three professional groups participate, an evaluation questionnaire in which students rate each of these groups ((Carpenter, 1995b) on a range of 8 to 10 characteristics is achievable. This becomes less feasible when 9 or more are part of the evaluation (Hean *et al.*, 2006a; Hean *et al.*, 2006b). If each student is asked to rate each of 9 professional groups on every characteristic then a long winded survey, conducive to pattern answering and fatigue is created.

Some approaches to combating the challenge are to:

- Only measure overall attitude to each of the many professional groups involved.
- Ask students to rate only a select number of professional groups on the full range of characteristics selecting those groups about whom the evaluator judges students to have the clearest knowledge (say doctors and nurses), omitting less well-known professionals (say podiatrists and audiologists).
- Utilise the format of questionnaire in (Table IX) (Carpenter *et al.*, 2003) where all professions are assessed simultaneously. In this format, however, there is a tendency for students to distribute their scores across each row. In other words, a student might rate doctors 1 on their breadth of life experience, nurses a 2, social workers a 3 etc. If these professions had been rated separately, then all professions may have potentially scored equally on this characteristic.

TABLE IX: Potential format for collecting ratings on a wide range of professional groups (Carpenter *et al.*, 2003)

Indicate your views on the professions. Rate each profession on the following characteristics using a number between 1 (very low) and 7 (very high). A score of 4=I don't know.

	Social workers	CPNs	OTs	Psychiatrists	Psychologists
Academic rigour	?	?	?	?	?
Interpersonal skills (e.g. warmth, empathy)	?	?	?	?	?

- Develop alternative versions of the survey tool that are each distributed uniformally to the student cohort. For example (Hean *et al.*, 2006a; Hean *et al.*, 2006b) created four questionnaire versions, each asking for ratings of all characteristics but on a different subset of professions. The four versions were distributed proportionally across each professional group. Hereby data was

collected on all characteristics on all professional groups. This reduced length of the questionnaire improved response rates. The main draw back of this approach, however, is that the sample size is effectively reduced four fold and is most suitable for evaluations using large student cohorts.

Content of questionnaire

Another practical challenge to stereotype measurement is the fact that students' responses to stereotype questions may be unduly influenced by what other questions appear in the same questionnaire tool.

Comparison of other professions being rated

Firstly, if stereotypes of a doctor are assessed in the same questionnaire in which stereotypes of mass murders are rated, then doctors are likely to be assessed very favourably. This positive assessment of doctors may be less extreme, however, if nurses are the other group being rated in the questionnaire. Evaluators need, therefore, to be cogent of these contrasts students draw and the potential impact of this (Doosje *et al.*, 1998).

Inclusion and salience of professional identity

Secondly, it is argued elsewhere that professional identity as a covariate that should be considered alongside any measure of stereotype change (Hean & Dickinson, 2005; Hean & Macleod Clark, 2006); (Hind *et al.*, 2003). If the mediating role of professional identity has not been taken into account, overall stereotype change (or the lack of it) may be misunderstood or misinterpreted. Practically, (Cinnirella, 1998) warns however, that including identity questions in an evaluation tool alongside stereotype ratings may make professional identity more salient to students than it might be otherwise. This is likely to influence students' responses to both identity and stereotype questions.

ANALYSIS

When stereotype ratings have been collected, evaluators will turn to means of analysis whether this be to present baseline measures of existing stereotypes or to monitor change over time. Whilst a full discussion of statistical approaches is not appropriate here, it is worth drawing attention to the fact that evaluators take 2 views on analysis. In an analysis of the ratings given on individual characteristics (Tables III to VIII), some authors analyse the ratings of each stereotype characteristic independently (Carpenter, 1995b; Hean *et al.*, 2006a; Hean *et al.*, 2006b). Others have chosen to combine scores on each characteristic to form an overall stereotype score. The latter assumes conceptually that ratings of stereotypical beliefs can be combined to form a measure of students' overall attitude. Hind *et al.* (2003) uses this approach, summing all ratings on each stereotype (reverse coding items were necessary). Similarly, (Lindqvist *et al.*, 2005) describes a two factor underlying structure to the bipolar list of adjectives used: an overall *caring* and *subservient* dimension. The advantage of summing ratings on each characteristic is that the overall score may be conveniently used in correlations with other variables measured in an evaluation (e.g. with professional identity or readiness for interprofessional learning-Hind *et al.*, 2003). However, at a theoretical level, it may be argued that ratings on each individual characteristic are not sufficiently similar to represent an underlying construct called attitude to the professional group. It may also be questioned whether each stereotype should receive an equal weighting if the scores are to be summed, bearing in mind that different characteristics may be perceived as of more or less importance (Carpenter *et al.*, 2003).

At a more statistical level, the advisability of treating, what is essentially ordinal data and non additive data, as continuous type data that can be manipulated in this way should be also assessed, as should the parametric/non parametric nature of the data and the appropriateness of the statistical tests subsequently employed. The choice the evaluator makes will depend on the distribution of the data collected and the purity of the evaluators' statistical beliefs as to the extent a summation of a range of Likert, visual analogue or semantic differential items allows the data to approach continuous type measurement. The contentious

argument that lies at the interface of statistics in the psychosocial sciences and the harder sciences is beyond the scope of this chapter.

FINDINGS FROM STUDIES USING STEREOTYPES AS PART OF AN EVALUATION

This chapter concludes by consideration of some of the results of studies in which stereotype have been included.

HSC students do hold stereotypes of other professional groups

IPE evaluations have found that students do hold stereotypes of both their own and other professionals. These stereotypes exist at every educational level:

- In qualified professionals involved in career development IPE (Barnes et al., 2000; Carpenter et al., 2003);
- In final year students reaching the end of their preregistration training (Carpenter, 1995b, 1995a; Carpenter & Hewstone, 1996)
- and as early as on entry to their preregistration training (Hind *et al.*, 2003; Tunstall-Pedoe *et al.*, 2003; Hean *et al.*, 2006a; Hean *et al.*, 2006b).

Students hold stereotypical views of other professional groups on a wide range of characteristics

(Hean *et al.*, 2006a) studying students on entry to a range of HSC preregistration programmes, found that students saw midwives, social workers and nurses as high in interpersonal skills and being team players and doctors as high in academic ability. Doctors, midwives and social workers were perceived as the strongest leaders and doctors were strong on decision making. Similarly, medical and nursing students, in their final year of training, have been shown to stereotype nurses as caring, good communicators, dedicated; of greater breadth of life experience and doctors as confident, dedicated, arrogant and academically more able (Carpenter, 1995b). Medical and social work students (Hewstone *et al.*, 1994; Carpenter & Hewstone, 1996) stereotyped doctors as of higher academic ability and social workers as of greater breadth of life experience. Both groups were seen as professionally competent. Finally, in a career development programme of IPE for community mental health teams, similar stereotypes flourished with psychiatrists being rated highly as leaders. Social workers were not rated highly on this characteristic but were rated highly in terms of their interpersonal skills (Barnes *et al.*, 2000).

Similarity in profiles

Some evaluators choose to look at the stereotypes of each individual characteristic in parallel and develop an overall profile of the way in which a particular professional group is viewed. Instead of considering each characteristic of a profession in isolation, a stereotype profile is produced in which all characteristics are plotted on the same axes and the stereotypical strengths and weakness of the professional group compared (Hean *et al.*, 2006a). Scores are not summed but a visual representation of all ratings on all characteristics is presented instead (see Figure 1, (Hean *et al.*, 2006a).

Characteristics

Figure 1: A comparison of the stereotype profiles of nurses and doctors (Hean *et al.*, 2006a)

In considering these profiles, Hean et al. (2006a) found that doctors and pharmacists were stereotyped in a similar fashion. Nurses, social workers and midwives also shared a similar profile. The profile of nurses and doctors were perceived to be different. It is not yet known the impact that these similar stereotype profiles may have on interprofessional behaviour, whether similar profiles may stimulate feelings of empathy or whether very differently profiled professions may interact in a complementary or alternatively confrontational manner (Hean *et al.*, 2006a).

(Lindqvist *et al.*, 2005) also chose to consider the ratings of students on a series of characteristic heuristically although they did so through the creation of two stereotype sub scales discussed earlier They find, similarly to (Hean *et al.*, 2006a) that pharmacists and doctors are characterised similarly on these broad constructs, both professional groups being low on these subservience and caring scales. Occupational therapists, nurses, physiotherapists and midwives are also viewed similarly being higher on both these dimensions.

Stereotype change

Stereotype change has been demonstrated during IPE programmes but results are inconclusive. An evaluation of IPE for medical, nursing (Carpenter, 1995b) and social work students (Hewstone *et al.*, 1994; Carpenter & Hewstone, 1996) revealed an improvement in stereotypes in general over the programme. However, in subsequent evaluations of IPE with community health service workers, no statistically significant stereotype change was detected (Barnes *et al.*, 2000). In other cases, stereotypes may have become more negative (Tunstall-Pedoe *et al.*, 2003; Mandy *et al.*, 2004). These variations in findings arise potentially from some key conditions of contact being unmet (Barnes *et al.*, 2000). It may also occur if the curriculum being evaluated has not had stereotype change as an explicit learning outcome. Broadly speaking, stereotypes are known to be hard to change having developed over an extensive period in the students' lives before they have even arrived for training. Positive stereotypes are particularly hard to develop (Rothbart & John, 1985) and it may take more than a single term (Tunstall-Pedoe *et al.*, 2003; Mandy *et al.*, 2004) of working together for these entrenched views to change.

Bearing in mind, the above findings and that stereotypes are not a unidimensional construct, evaluators should be clear as to the type of stereotype change IPE might be expected to achieve. The following questions may help this process:

- Is it the nature of the stereotype that needs to be altered in students (e.g., Do we wish students to recognize the academic ability of all groups and rate all groups higher on this characteristic in the future)?

- Are we trying to foster mutual differentiation and a recognition that the professions have different strengths that are complementary in the HSC team?
- Does IPE develop reflective practitioners that *knowledge* of the existence of stereotypes, their purpose and through processes of meta cognition have the ability to identify their own intergroup behaviours?
- Are we trying to improve the value or importance placed on some characteristics, e,g, that being a team player is as important as being academically able?
- Is IPE trying to reduce the process of stereotyping itself through showing students that other professional groups are not homogeneous in their attributes?

These questions, especially the last three questions, remain largely inconclusive or unanswered in the IPE research.

Findings on mutual group differentiation

Applying social identity theory implied that good intergroup relations are promoted if students see their professional group as distinctive on certain characteristics, a fact optimized if this distinction is recognized by other professional groups (mutual intergroup differentiation). (Hewstone *et al.*, 1994) found that social work students saw themselves, and were seen by student doctors, as superior on life experience. Similarly doctors saw themselves and were seen by social workers as superior on academic quality. Students therefore saw themselves as distinct and superior on particular characteristics and these same distinctions were recognized by other groups also.

In a similar evaluation, Carpenter, (1995b) also found such consensus with '. . . nurses.. seen by both groups as caring, dedicated and good communicators and neither arrogant nor detached; doctors were confident, decisive and dedicated but arrogant (Carpenter, 1995b,p.159)'. Barnes *et al.*, (2000)in their evaluation of a post-registration IPE course, again found evidence of mutual intergroup differentiation in that 'social workers, community psychiatric nurses and occupational therapists were willing to concede superiority in leadership and academic rigor to psychiatrists and psychologists, but saw themselves as clearly superior in terms of communication, interpersonal and practical skills'(Barnes *et al.*, 2000, p. 575).

Finally, Hean & Macleod Clark (2006) suggest that most first year HSC students perceived their professional ingroup as distinct from other professional groups, with the exception of audiology students. They conclude that the ability of students to see themselves as distinctive, bodes well for future intergroup interactions. Furthermore, in certain groups there was evidence that student groups were seen by others as they saw themselves. This was particularly the case for doctors and social workers and implies that these professions will suffer least from a threat to their group distinctiveness. However, there were instances where characteristics, seen as distinctive by the professional group itself, were not recognized by other groups. For example, physiotherapy students believe that being a team player, and decision making and practical skills were all distinctive characteristics of their profession. However, these features were not recognized as distinctive by other professional groups. It is yet unknown how these matches/mismatches in how students see themselves, and how they may be viewed by others, impact on student learning experiences and relationships during IPE.

CONCLUSION

In this chapter, I have outlined some of the theoretical reasons for evaluating stereotype change in an IPE evaluation and summarised some of the measurements used to achieve this. There are some practical challenges and caveats, some of which may contribute to the variation in findings in this area. However, our understanding of stereotype change and the processes that underpin this is still underdeveloped. We need to explore the other dimensions of stereotype construct in greater detail. We need to better understand the impact of other variables on this construct, the influence of professional identity in particular, and we need to understand why stereotype change does not always occur. A structured assessment of the contact conditions in place during a programme has contributed to such an understanding (Barnes *et al*., 2000) but this needs to be further developed. In addition, studies on stereotype change in IPE are also exclusively quantitative in nature. To explore this complex construct and the processes in IPE that underpin it, more qualitative approaches to measurement should be taken to triangulate with existing findings. Finally and perhaps most importantly, the relationship between stereotype ratings, stereotype change and any behavioural change at micro and macro levels of analysis are essential if the evidence base supporting IPE and its potential impact is to be strengthened.

ACKNOWLEDGEMENT

I would like to acknowledge the inputs of Professor Alex Haslam (University of Exeter) and Professor John Carpenter (University of Bristol) to my understanding of this area and the content of this paper.

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Confidence

Practical Skills

Team Player

Leadership

Professional Competence

Decision Making

Work Independently

Interpersonal Skills

Academic Ability