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Promoting a culture of reflection in teacher education: the challenge of large lecture settings

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The promotion of reflective practice, while widely advocated in higher education settings, nonetheless presents numerous challenges. This is an under-researched aspect of the discourse on reflective practice. A key challenge for those working in the field of teacher education within higher education is to promote a culture of reflection in large group teaching settings. This article reports on the results of a study undertaken in a university in the Republic of Ireland, which examined the potential for developing this area with student teachers, using reflective verbalisation as an organising framework. Locating the discussion within the framework of the theoretical literature on reflective verbalisation, the paper contributes to the ongoing international debate about the facilitation of reflective practice within teacher education in large group educational settings.

Keywords: curriculum evaluation; higher education; large group teaching; reflective verbalisation; teacher education

Introduction

There exists a vast literature on reflection, reflective thinking, curricula and teaching for reflective practice and related topics (Kember and Leung 2000). It is widely accepted within that literature that reflective practice contributes to the development of more sophisticated conceptual structures (Leinhardt and Greeno 1986) and ultimately to the quality of student experience and student learning (Kreber and Castleden 2009, 510). However, while widely advocated in higher education settings, the promotion of reflective practice in large group teaching contexts presents numerous challenges. The contextual issues impacting on the promotion of reflective practice remain a critical issue in higher education (Boud and Walker 1998) and an under-researched aspect of the discourse on reflective practice.

The challenges presented by educational environments in higher education settings particularly in relation to large group teaching contexts have been the subject of considerable scholarship (Andresen 1994; Gibbs and Jenkins 1992; Jenkins 1991; Newble and Cannon 1995; Saroyan and Snell 1997). Large groups, in general, are experienced as being intimidating, inhibiting and isolating (De Maré, Piper, and Thompson 1991). Skills such as the ability to think, to reason, to socially develop and to engage others in dispute (many of the implicit aims of university education) are not easily realisable in large group teaching settings (Hogan and Kwiatkowski 1998,

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1409). Yet, despite the manifold challenges which large group teaching and learning settings present, lecturing remains the most widely endorsed model of teaching in university contexts (McKeachie 1994; O'Donnell and Danserau 1994). The rationale for the lecturing model is obvious: it can accommodate large numbers of students and hence is economical; it allows for the dissemination of information to large audiences with efficacy, and it has the potential to adapt to divergent needs and audiences (Gage and Berliner 1991). Prosser and Trigwell (1993) suggest that teaching approaches within large group settings can typically be described as being either student focussed or teacher focussed (see also Prosser and Trigwell 1999; Trigwell and Prosser 1996). Saroyan and Snell (1997) suggest that lectures can be broadly characterised as being content driven, context driven and pedagogy driven and conclude that much can be achieved within large group lectures if they are pedagogically sophisticated: 'the more pedagogically oriented the lecture, the higher it is rated by students' (Saroyan and Snell 1997, 85).

Examining the contextual factors which impact on the development of reflective practice in higher education settings, Boud and Walker (1998) emphasise the need to build trust, and the problematic nature of this process; the need to create situations in which learners are able to make their own meanings; an awareness of whose interests are being pursued in the promotion of reflective activities; and the importance of creating and respecting boundaries between the institutional imperatives of learning and the personal domain of the learner. This article explores the challenges experienced by teacher educators promoting reflective practice in a large group setting, using reflective verbalisation as an organising framework.

Theoretical framework: reflective verbalisation

Schön (1983) observes that many professional education courses have not recognised the nature of professional practice and use a technical-rational approach which emphasises procedures for solving well-defined problems with unique solutions. He argues that a more appropriate model for professional education is equipping students to become reflective practitioners in order to deal with the multi-faceted problems. Moon (2001) suggests that reflection is a form of mental processing – like a form of thinking – that people use to fulfil a purpose or to achieve some anticipated outcome. It is applied to relatively complicated or unstructured ideas for which there is not an obvious solution and is largely based on processing knowledge and understanding. In the academic context, there is likely to be a conscious and stated purpose for reflection, with an outcome stated in terms of learning or clarification.

In large group settings an obvious way of engaging participants with reflection is to get them to verbalise their ideas. Reflective verbalisation has been investigated by many authors and some studies indicate a positive effect on performance for different types of complex problems (Berardi-Coletta et al. 1995). However, according to Ericsson and Simon (1993) simple think-aloud verbalisations will not interfere with or change performance, because people are simply stating what is currently in their working memory. But being asked for explanations for results, justifications of decisions, and evaluation of procedures requires people to bring information into working memory which is not normally stored there. This implies that the instruction or encouragement not only to describe but also to explain, justify and evaluate one's results has a decisive impact on performance (Wetzstein and Hacker 2004). Content-specific dialogue with a partner or a discussion within a group also contributes to

reflection (Valkenburg and Dorst 1998; West 1996). Berry and Broadbent (1984) found in their study that reflective verbalisation focuses attention on issues which were not previously considered. Wetzstein and Hacker (2004) found significant improvements in participants' capacity to describe, explain, evaluate and justify solutions after employing reflective verbalisation. They suggest that this approach provides participants with the opportunity to detach from former thinking patterns and solutions and produce different answers thereby extending the problem space. This approach is a useful organising framework to guide teacher educators with reference to promoting reflective practice in large group settings.

Reflective practice in teacher education

Reflection has become a central element of numerous teacher preparation programmes in the international context (Novak 1994; Valli 1992). However, as Calderhead (1992, 143) points out there is a dearth of relevant theory and empirical research with reference to preparing reflective teachers and concludes that there is little to guide the practice of teachers and tutors involved in programmes aiming to promote reflective teaching. While there is limited knowledge available about the process of teaching promotes reflective teaching, still less is understood about how reflective teaching is promoted among pre-service teachers (Sparks-Langer and Colton 1991). In the literature where teacher educators have sought to promote critical reflection, reports of success have been limited (Dinkleman 2000). Their experiences suggest that critically reflective teaching appears to be an aim that is more desired than achieved. The elusiveness of critically reflective teaching has prompted many unanswered questions about whether or not it should be a realistic aim for pre-service teachers (Calderhead 1992; Dinkleman 2000). Cochran-Smith (1991) has suggested that critically reflective teaching can only be learned by beginning teachers working in schools with experienced teachers who themselves value critical reflection. Others have suggested that critical reflection should be regarded as a trait that is acquired by teachers who have several years of classroom experience (Kagan 1992). As Dinkleman (2000) suggests progress on these questions will be made only through an examination of the experiences teacher educators and pre-service teachers have in programmes that seek to promote critically reflective teaching.

Research context

The Republic of Ireland unlike many countries has no difficulty in recruiting teacher education students at all levels of the education system. Student teachers in Ireland are academically high achievers, which is not typical internationally (Killeavy and O'Moore 2001). Initial teacher education students in the Republic of Ireland are highly motivated by altruistic reasons for choosing a career in teaching (Clarke 2009). Initial primary teacher education is delivered by the Colleges of Education while second-level teachers attend education departments of universities for their initial teaching education. In common with a number of countries internationally both concurrent and consecutive models of initial teacher education pertain in the Irish system (Coolahan 2001). The fundamental aim of such courses is to provide the professional and academic foundation for a career in teaching by providing a third-level education, which will impart the knowledge and pedagogical skills

necessary to teach national curricula. While teacher education programmes are broadly similar in structure, differences concerning the structure of academic year, the mix of subjects offered, and the length of time allocated to teaching practice often occur (Department of Education and Science 2007). The dominant model for secondary teachers is the consecutive model, in which students follow a programme of professional training in pedagogy and teaching leading to the award of a Post-Graduate Diploma in Education worth 60 European Credit Transfer and Accumulation System (ECTS). Graduates undertaking this programme have first completed a primary degree in a discipline related to the subjects, from the post-primary school curriculum (Harford 2010). To date university education departments have enjoyed significant autonomy in relation to syllabi and curricula (Dupont and Sugrue 2007).

The programme where this intervention took place aims to develop in students a knowledge and appreciation of the discipline of education; a sense of the broad context of Irish education as part of society as a whole; an appreciation of the complicated nature of the teacher's role and of the function(s) of schools in society; a knowledge of a range of models of instruction, with the ability to choose between them and to apply them in classrooms, laboratories and elsewhere; and an ability and willingness to act as reflective practitioners, adopting critical insights into practice as appropriate. It consists of a number of components, which include: education studies; academic subject studies; subject methodologies; and teaching practice. Students typically teach each morning in a recognised secondary school and attend lectures, tutorials and workshops in the university each afternoon. The expectation is that all modules will be enquiry based and provide the foundation for reflective practice.

Research design

Examining the experience of student teachers who exited the programme in 2008, the researcher recognised that while there was broad support for the concept of reflective practice, student teachers struggled to integrate the theoretical basis for reflection espoused in lectures with their teaching practice experience. Motivated by the concern to embed reflective tendencies within student teachers' broader approach towards teaching, the researcher with a colleague decided to bring together the core principles of two modules for which they were each solely responsible: Curriculum Inquiry and the Reflective Teaching Portfolio. For the colleagues themselves, this presented a significant challenge, since it meant that each had to broaden their understanding of each other's module, while at the same time, they had to work together to achieve depth in terms of the quality of student engagement and learning outcomes. A further challenge was the fact that the lecturers only met these student teachers as a group once a week for a one-hour lecture slot.

The module ran over two 12-week semesters for one hour each week (24 hours in total). Students were given an outline of the content of the module during the first lecture and were introduced to the concept of reflective practice. Broadly, students were introduced to the theoretical aspects of the secondary school curriculum in the first 20 minutes of each lecture and the subsequent 40 minutes were given over to an exploration of students' reflections on teaching the curriculum in the practicum. Reflective practice sheets contained a series of

questions based on the content of the lecture and were designed to initiate explanations, evaluations, justifications and ways of improving their answers with reference to their own pedagogical practice in classrooms. As an example, the area of assessment within curricular programmes featured in a number of lectures. With reference to this area students were asked to consider the following questions: a) 'Can you think from your own experience of one positive or negative experience of giving or getting feedback?' b) 'Explain what contributed to making this a positive/negative experience' c) 'Identify a number of different approaches that could have been used and provide a rationale for your choices' and d) 'How could you incorporate these different approaches into your classroom teaching when giving feedback?' These sheets were routinely handed out at each lecture. Students were given a few minutes to independently fill them out. The students answered aloud the questions that they were asked, verbalising their thoughts and experiences with the wider student body. Students collated these sheets over the course of the module, and used them as a basis from which to build their teaching philosophy for their reflective teaching portfolio. A team-teaching approach was employed across all of the lectures in an effort to model good practice. The basis of the feedback from each student at the end of each lecture was used to inform subsequent lectures. All material used during lectures (PowerPoint presentations; video and audio clips; images of relevant resources) was uploaded to the university's virtual learning platform.

Data collection

Research instruments were informed by a systematic review of the literature in the area of reflective practice within higher education and teacher education. Data were generated via a self-completion questionnaire, informed by the course experience questionnaire developed by Ramsden (1991). The instrument sought to collect:

- biographical data about the students (age category, gender, and previous qualifications);
- attitudinal data (agreement or disagreement with a number of propositions dealing with students' perceptions of the module in terms of developing their reflective practice skills and their experience of the educational environment in which the module took place).

The self-completion questionnaire was issued, completed and collected at the end of the lecture series by both lecturers.

Sample

A convenience sample was used in this study by virtue of the accessibility of the students and the nature of the study. The survey instrument was given to 223 students who participated on the programme. One hundred and fifty-six responded resulting in a response rate of 70%. Ethical approval was received in accordance with standard university policy in this area. Owing to the procedures adopted by the university in this study, direct access was not permitted to student contact and record details, thereby ensuring respondent anonymity.

However, the university agreed to the collection of personal data when it was indicated clearly on the questionnaire that the respondents had demonstrated their agreement to answer such questions. Specific guidelines concerning personal data were explained to all present. Respondents were informed that participation was entirely voluntary. Consent to participate was signalled on the questionnaire which allowed each respondent to indicate their agreement as participants in the study.

Data analysis

Data obtained were analysed using the Statistical Package for the Social Sciences (SPSS version 15.0). Both descriptive and inferential statistics were used in the analysis and description of the data set. Descriptive statistics were used to summarise demographic data and the results from the questionnaire. Correspondence analysis, which can be used with frequency data, with percentages, with data in the form of ratings and with heterogeneous datasets, was used to establish the profiles and was selected owing to its versatility (Greenacre 1993); factor analysis was used to identify scales and reliability analysis was undertaken using the internal consistency measure Cronbach's alpha.

The items on the questionnaire were subjected to principal component analysis (PCA) using SPSS. Prior to performing PCA, the suitability of data for factor analysis was assessed. Inspection of the correlation matrix revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Olkin value was .867, exceeding the recommended value of .6 (Kaiser 1970, 1974) and the Bartlett's Test of Sphericity (Bartlett 1954) reached statistical significance (.001), supporting the factorability of the correlation matrix.

PCA revealed the presence of two components with eigenvalues exceeding 1; an inspection of the scree-plot revealed a clear break after the second component. To aid in the interpretation of these two components, Varimax rotation was performed. The rotated solution revealed the presence of a simple structure (Thurstone 1947) with the two components showing a number of strong loadings. The two-factor solution explained a total of 37% of the variance, with reflective practice contributing 20% and educational environment contributing 17%.

Results

Reliability and validity of the instruments

The subscales from the questionnaire were found to be very reliable with internal consistency measures (Cronbach's alpha). See Table 1.

Demographic profile of the sample

Table 2 outlines the gender and age profile of the sample. The results are firstly presented in relation to students' perceptions of their reflective practice skills and their perceptions of the educational environment in which the module took place.

The majority of the sample were female and aged under 25 years. Equally the majority of respondents had humanities degrees and had achieved second-class honours at undergraduate level. Over 90% of respondents intended to teach next year indicating their commitment to pursuing a teaching career.

Table 1. Reliability estimation of scales.

Scale name	Number of items	Cronbach's alpha
Students' perceptions of their reflective practice skills	11	.89
Students' perceptions of their environment	15	.83

Table 2. Gender and age profiles of respondents ($n = 155$).

	% of respondents	No. of respondents	Age range of respondents	% of age group	No of respondents
Males	28%	$(n = 44)$	Under 25 yrs	68%	$(n = 106)$
			25 but under 30 yrs	25%	$(n = 39)$
Females	72%	$(n = 111)$	30 but under 40 yrs	4%	$(n = 6)$
			40 yrs and over	3%	$(n = 4)$

As indicated in Table 3, respondents rated the following aspects of the module highly: the development of reflective skills; the use of a reflective approach to new situations which arose in their classrooms; the capacity to reflect on the curriculum; confidence to reflect on and investigate new ideas; the value of their learning for the future; and the role played by the module in facilitating the development of a teaching portfolio. The following aspects of the module were rated less highly: the effectiveness of the reflective practice worksheets; insights the module provided into contemporary Irish education; the efforts made by the teaching staff to make the subject interesting; the e-learning platform which supported the module; and the ways in which the module supported students in considering the impact of the curriculum on their classroom teaching.

Table 3. Item scores: reflective practice.*

Statement	Item scores		Number
	Mean	SD	N
The course developed my reflective skills	4.0	.83	156
As a result of the module I learned to use a reflective approach to new situations that arose in my classroom	4.0	.81	155
The reflective praxis sheets guided me in developing a teaching philosophy	3.1	.12	156
My module helped me develop a teaching philosophy	3.7	.88	156
I learned to reflect and develop my own ideas about teaching and curriculum	3.9	.64	155
The module improved my skills in developing a teaching portfolio	3.8	.96	156
Overall my module experience was worthwhile	3.9	.83	155
The module developed my confidence to reflect on and investigate new ideas	3.9	.73	154
I consider what I learned valuable for my future	4.0	.81	154
The module helped me reflect about wider issues in education	3.4	.95	156
The module helped me to think about the impact of curriculum on my classroom teaching	3.4	.95	156

*Scores range from 1 = Strongly Disagree to 5 = Strongly Agree.

Respondents indicated broad satisfaction with their educational environment (see Table 4) rating highly the interactive style promoted throughout the module as a means of facilitating student voice; generating an awareness of multiple perspectives; and creating a sense of a community of learners. Aspects of this scale which they rated less highly included: the opportunity to explore specific curriculum and classroom issues with staff and other students during lectures; their own confidence in relation to knowledge of curriculum issues; the efforts made by the teaching staff to understand individual student teacher difficulties in the practicum; the degree to which the module was intellectually stimulating; and their impression of the standard of work expected.

The mean scale scores identified the development of their reflective practice skills as the highest outcome of the module experience (Table 5) as opposed to the educational environment in which the module was delivered.

Table 4. Item scores: educational environment.*

Statement	Item scores		Number N
	Mean	SD	
I felt part of a group of students and staff committed to learning	3.8	1.1	155
Overall I was satisfied with the quality of the module	3.8	.94	156
I was able to explore curriculum and classroom issues with staff and students during the lectures	3.5	1.1	156
Students' ideas and suggestions were welcomed during lectures	4.2	.76	155
I found the content of the module to be intellectually stimulating	3.4	1.0	153
The module gave me good insights into issues in contemporary Irish education	3.9	.78	155
The teaching staff worked hard to make their subject interesting	3.9	.80	156
The E-learning platform and resources on Blackboard were very helpful to my learning and developing a teaching philosophy	3.3	.99	155
As a result of this module, I feel confident about my knowledge of curriculum in schools	4.0	.81	154
The teaching staff made a real effort during lectures to understand difficulties I might be having with my school experience	3.6	1.1	155
It was always easy to know the standard of work expected	3.3	1.1	153
My module experience encouraged me to value perspectives other than my own	3.9	.78	155
I usually had a clear idea of where I was going and what was expected from me in this course	3.5	.96	156
The teaching staff on this module motivated me to develop my teaching portfolio	3.7	.84	155

*Scores range from 1 = Strongly Disagree to 5 = Strongly Agree.

Table 5. Mean scale scores.

Scale name	Mean	SD
Students' perceptions of their reflective practice skills	51.77	7.97
Students' perceptions of their environment	48.23	7.24

The foregoing results prompted the researcher to look more closely at the variables which made up each scale to test for significant association in relation to gender and age groups. A number of interesting patterns emerged.

Gender and age in relation to reflective practice

There was a significant association between gender and the effectiveness of the module in the development of reflective skills ($\chi^2 = 12.136$, $df = 4$, $p = .020$). More females (88%) than males (46%) agreed that the course developed their reflective skills (Inertia: Dimension 1 = .078; Dimension 1 Male = .716; Dimension 1 Female = .284). No significant association emerged between age group and the module in terms of the development of reflective skills. A significant association emerged between age group and student responses to learning to reflect on and explore their own ideas about teaching and curriculum ($\chi^2 = 36.396$, $df = 12$, $p = .000$) (Inertia: Dimension 1 = .199). Those aged over 40 were in total agreement (100%) with this statement (this may be the result of small numbers in the over 40 years category) followed by those aged under 25 years (87%). Those aged 31–40 years (50%) expressed least agreement with this statement. Figure 1 displays the data.

A significant association emerged between gender and the statement that ‘as a result of the module I learned to use a reflective approach in new situations that arose in my classroom’ ($\chi^2 = 15.905$, $df = 4$, $p = .003$). More females (85%) than males (56%) agreed with this statement (Inertia: Dimension 1 = .104; Dimension 1 Male = .719; Dimension 1 Female = .281). There was also a significant association between age group and this item ($\chi^2 = 22.831$, $df = 12$, $p = .029$) (Inertia:

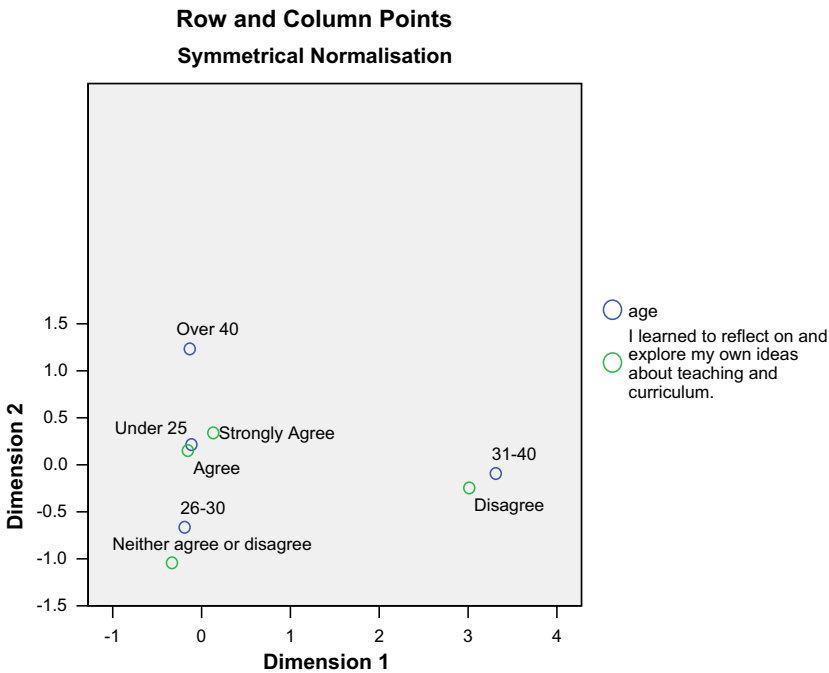


Figure 1. Age group and respondents’ views about learning to reflect on and explore their own ideas about teaching and curriculum.

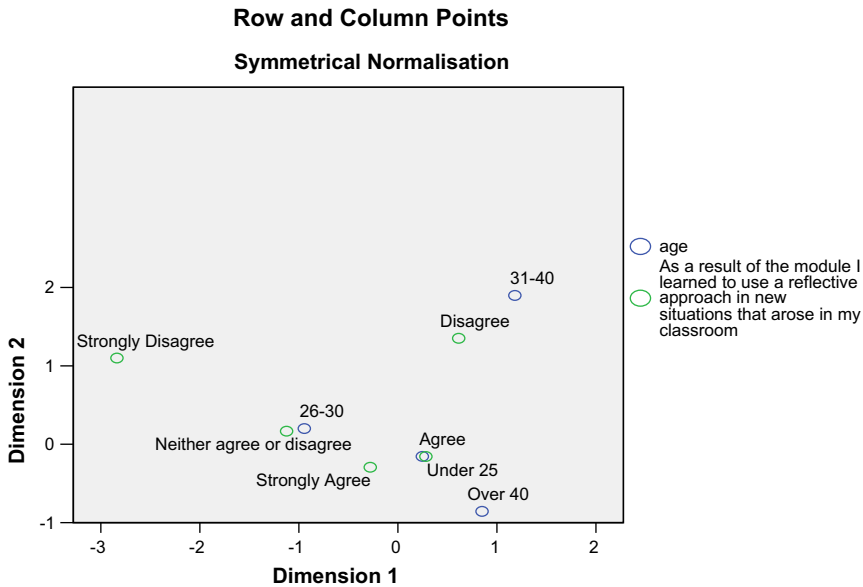


Figure 2. Respondents' views about using reflective approaches to new situations in classrooms.

Dimension 1 = .111). Those aged over 40 (100%) were in total agreement with this statement (this may be the result of small numbers in the over 40 years category) followed by those aged under 25 years (82%). Those aged 26–30 years (61%) expressed least agreement with this statement. Sixty-seven per cent of those aged between 31–40 years agreed with this statement. Figure 2 displays the data.

There was a significant association between gender and the statement that the module developed respondents' confidence to reflect on and investigate new ideas ($\chi^2 = 11.557$, $df = 4$, $p = .021$). More females (87%) than males (68%) agreed with this statement (Inertia: Dimension 1 = .076; Dimension 1 Male = .712; Dimension 1 Female = .288). No significant association emerged in relation to age group. There was also a significant association between gender and the statement 'I consider what I learned valuable for my future' ($\chi^2 = 18.917$, $df = 4$, $p = .001$). More females (92%) than males (46%) agreed with this statement (Inertia: Dimension 1 = .124; Dimension 1 Male = .712; Dimension 1 Female = .288). No significant association emerged in relation to age group. A significant association emerged between gender and whether the module experience overall was worthwhile ($\chi^2 = 10.379$, $df = 4$, $p = .035$). More females (82%) than males (59%) agreed with this statement (Inertia: Dimension 1 = .067; Dimension 1 Male = .714; Dimension 1 Female = .286). There was also a significant association between age group and this item ($\chi^2 = 21.876$, $df = 12$, $p = .039$) (Inertia: Dimension 1 = .095). Those aged over 40 (100%) were in total agreement with this statement (this may be the result of small numbers in the over 40 years category) followed by those aged under 25 years (77%). Those aged 31–40 years (50%) expressed least agreement with this statement. Seventy-two per cent of those aged 26–30 years agreed with this statement. Figure 3 displays the data.

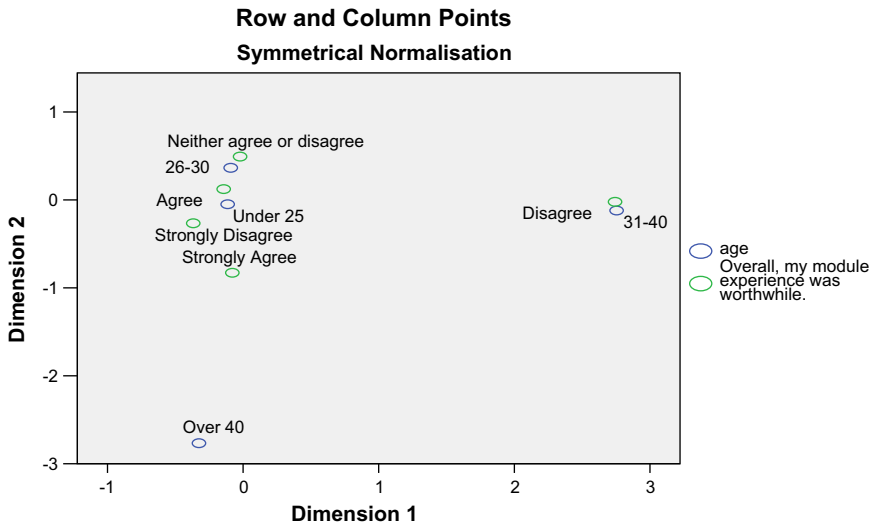


Figure 3. Respondents' views about the module as a worthwhile experience.

Gender and age in relation to educational environment

There was a significant association between gender and overall quality of the module ($\chi^2 = 17.746$, $df = 4$, $p = .001$). More females (76%) than males (56%) agreed with this statement (Inertia: Dimension 1 = .115; Dimension 1 Male = .714; Dimension 1 Female = .286). No significant association emerged in relation to age group. A significant association emerged between gender and finding the content of the module intellectually stimulating ($\chi^2 = 12.834$, $df = 4$, $p = .012$). More females (62%) than males (48%) agreed with this statement (Inertia: Male = .060, Female = .024; Dimension 1 Male = .711; Dimension 1 Female = .289). No significant association emerged in relation to age group. There was a significant association between gender and the teaching staff motivating students to develop their teaching portfolio ($\chi^2 = 12.147$, $df = 4$, $p = .016$). More females (76%) than males (52%) agreed with this statement (Inertia: Dimension 1 = .079; Dimension 1 Male = .714; Dimension 1 Female = .286). No significant association emerged in relation to age group.

Discussion

The findings suggest a number of challenges with reference to using reflective verbalisation as a framework to promote reflective practice in a large group setting. One of the key elements working in large group settings and in using such a framework is building trust among the group, creating situations where learners are able to make their own meanings and respecting the boundaries in terms of the personal domains of learners. The use of reflective verbalisation in this context achieved some of those objectives.

With reference to the development of their reflective practice skills over the course of the module, participants indicated that their experience of the module enabled them to use a reflective approach to new situations which arose in their classrooms, and the module had facilitated their capacity to reflect on and develop their own ideas about teaching and curriculum.

Participants were less happy with the use of the reflective practice sheets, where they were required to think about their own classroom contexts, and explain, justify and evaluate their own perspectives. This indicates perhaps a resistance to the structuring of reflective practice and points to the challenges experienced by students when confronted with bringing information into working memory which is not normally stored there (Ericsson and Simon 1993). Participants did not feel that the module allowed them to explore with staff and fellow students specific curricular and/or classroom issues which they were experiencing in the practicum. This was an aim of the reflective verbalisation framework employed in the module but it is not always possible to engage with students on an individual basis in large group settings (Hogan and Kwiatkowski 1998, 1409). While the purpose of using the framework was to give participants the opportunity to discuss their experiences in the classroom, participants did not feel that the teaching staff understood the difficulties that individual student teachers might be experiencing in the practicum. These findings support the view that learners carry with them assumptions and have different expectations and demands, which affect how they approach the various processes of the learning event (Boud and Walker 1998) and this presents a significant challenge for teacher educators using this type of framework.

The educational environment is an important factor in the promotion of reflective verbalisation and overall respondents were generally positive about the quality of the environment in which the module was delivered, though they rated it less highly than the reflective practice aspect of the module. They liked the fact that student ideas and suggestions were encouraged during lectures; they felt part of a group of students and staff committed to learning and they developed the capacity to value perspectives other than their own. These findings support the view that much can be achieved in the large lecture settings (Saroyan and Snell 1997), where students feel that they can influence the operation of the procedures and the process of learning (Gibbs and Jenkins 1992).

The study highlighted additional challenges in relation to the promotion of reflective verbalisation, namely gender. Males expressed less satisfaction with the reflective orientation of the module compared with females.

In relation to specific aspects of the educational environment, males indicated that they were less satisfied with the overall quality of the module. The responses from males may indicate a willingness to express negative views as opposed to holding more negative opinions and this merits further investigation. No age differences emerged in the study in relation to the educational environment.

Implications for teacher education

Many components of teacher education programmes are delivered in large group settings and reflective practice is considered a key element of such programmes. Consequently there is an onus on teacher educators to seek ways of promoting such approaches and investigating student teachers' responses to those initiatives. Reflective verbalisation can work as a framework to promote reflection, however certain limitations must be considered. Using structured reflection within the framework presented a number of challenges for student teachers particularly in relation to getting them to think beyond their own particular pedagogical circumstances. Teacher educators when designing such approaches should consider carefully the impact that the practicum has on student teacher thinking. Equally, it is

important for teacher educators to be aware of the fact that moving student teachers beyond simple think-aloud verbalisations to a more reflective analysis is challenging. The difference in the opinions of males and females about the process should be noted and merits further consideration within courses in initial teacher education that promote reflective practice. Furthermore, the issue of age in large lecture settings is a further area under-researched in the literature and an issue which raises questions with reference to the promotion of reflective practice within large lecture settings.

Conclusions

The findings of this study indicate clearly that the promotion of reflection within large group teaching settings is possible, given the existence of a number of variables. An interactive teaching and learning environment which is student centred and built on a sense of trust were critical factors in the promotion of reflection within this particular study. They were also critical in counteracting the more negative factors, which students often associated with a large lecture setting. Although the fostering of an interactive, student-centred and negotiated teaching and learning environment remains a challenge in a large lecture format, it is possible, given due consideration at the design phase of a module/programme. Such factors contribute to the validation of student voice, generation of an awareness of multiple perspectives and the creation of a community of learners, all of which help in the promotion of a habit of reflection over time. Looking to the future, two principal areas for further research emerged from this study, namely the relationship between gender and reflection and that between age and reflection. Both of these have significant implications for the way in which students are taught in large lecture settings in teacher education which, despite the problems associated with this model, remains and is likely to remain the dominant model of programme delivery. Nonetheless, scholarship to date has not examined in any detailed way the relationship between these variables. Given the widely acknowledged importance of the promotion of a culture of reflective practice within teacher education, further research in this area is warranted.

Notes on contributor

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