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Following Alice

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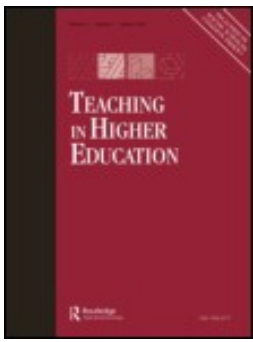
Following Alice: theories of critical thinking and reflective practice in action at postgraduate level

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This paper presents a flexible framework of principles for teaching critical thinking and reflective practice skills at the postgraduate level. It reports on a collaborative project between four UK institutions providing postgraduate programmes in deaf education. Through a critical review of current theories of critical thinking and reflective practice in higher education, the authors identified and constructed frameworks of principles for relevant skills. They selected a set of learning activities for the institutions to trial to target those skills. Students evaluated how successfully the activities promoted the skills. The investigators evaluate the methodology and provide a critique of the framework of principles. Findings reveal that the framework of principles is a robust model for the development, design and evaluation of bespoke learning activities targeting critical thinking and reflective practice skills.

Keywords: critical thinking; reflective practice; postgraduate; professional training; deaf education

Introduction

This paper examines critical thinking and reflective practice in higher education (HE). It reports on a collaborative research project between four UK HE providers of the Teacher of the Deaf (ToD) qualification at postgraduate level. This was funded by the Nuffield Foundation (SGS/3204). There are five providers of the ToD postgraduate award in England and one in Scotland. All programme leaders participated in the project development. Leaders from four HE institutions chose to take part in the empirical part of the study. The research team comprised the principal investigator (PI) team and three co-investigators. The project had three objectives:

(1) To identify postgraduate-level and professional skills of critical thinking and reflective practice for ToDs and synthesise areas for development into a framework of principles.
(2) To trial and evaluate teaching and learning activities at each institution targeting critical thinking and reflective practice principles.

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(3) To collate and analyse student feedback on the activities trialled at each institution to calibrate and develop the framework of principles.

The project was motivated by the recognised need for criticality and reflexivity in the professional work of ToDs and responded to the dissonance between researcher and practitioner discourses in deaf education. The complex and multidimensional nature of the education of deaf students, in which each dimension has a significant impact on development, presents a complex challenge for either general or special education teachers (Stewart and Kluwin 2001). This is compounded by the additional and complex social, psychological and educational issues that have arisen as a result of rapid technological advances in audiological technology, which have caused shifts in the communication needs and potential of deaf children (Mayer and Leigh 2010). These issues occur in a fissured field, where divisions exist between schools of thought influenced by psychology, linguistics and audiology. As a consequence, student-teachers and qualified ToDs are required to navigate divergent research discourses, challenge established views and bring their creativity to bear both in terms of their own classroom practice and in the broader area of policy (Swanwick and Marschark 2010). Postgraduate ToD training needs, therefore, to equip student-teachers with the ability:

(1) To engage with and address social and medical models of deafness.
(2) To adapt to the rapid changes in audiological technology and the subsequent changing needs of deaf pupils.
(3) To navigate critically divergent discourses within deaf education research and apply this to the education context.

Currently, all ToD training institutions in the UK work to a common framework of competencies established by the Teacher Development Agency in 2009 (TDA 2009; Scottish Government 2007). These externally specified competencies encompass professional understanding, knowledge and skills. Alongside these competencies is a requirement to develop and demonstrate postgraduate-level skills in critical thinking and reflective practice. Programme providers seek to offer training which balances competencies and practical skills with research engagement and a critical orientation to practice. The project identified a national need for theoretical understanding and ways of targeting those skills in practice.

Study design

The study was designed as a national project which would have local relevance for each HE institution. The methodology comprised an iterative sequence of national focus group activities, alternating with local field work. In an initial focus group forum programme leaders discussed priorities for the development of critical thinking and reflective practice in deaf education, establishing parameters and sources for a literature review. The next step was a literature review. The review identified the conceptual frameworks and theoretical underpinnings of critical thinking and reflective practice. It also reported examples of postgraduate teaching activities that targeted these skills.

In a second focus group, the research team agreed on major themes and target skills that emerged from the literature. We observed crossovers and differences

between critical thinking and reflective practice, beyond a rigid separation of the two concepts. Looking across the literature, we identified seven skills which were pertinent to the postgraduate professional training of ToDs and agreed on key words to describe these. Later, we began to refer to these as 'principles' of critical thinking and reflective practice (Table 1). From a pool of teaching activities, each programme leader selected an activity to trial that fitted the delivery style of their institution (face-to-face, blended or online distance provision).

In a third focus group, the team gathered feedback on the different teaching activities. The strengths and weakness of the activities for promoting the seven skills were discussed. We agreed on three core activities to be trialled during the following academic year. A feedback tool was designed to collect Likert scale and qualitative (open response) feedback from student participants in response to the identified principles and activities. The participant group was composed of volunteer students currently in postgraduate ToD training. Individual data on student cohorts was not collected because this sample was intended to give a national, rather than institutional, overview of student feedback to the activities.

The research team delivered the activities and collected student evaluations. Delivery of activities was not monitored for standardisation. The emphasis of the project was on the extent to which the seven shared principles were targeted and promoted by certain types of activity. It was accepted that individuals and institutions have bespoke approaches to teaching.

In the final stage of the project, the feedback data from individual institutions was collated and analysed by the PI team. These data are shown in Table 2 and discussed in 'Results'.

Review of critical thinking and reflective practice

The literature review assessed perspectives on critical thinking and reflective practice from philosophy, psychology and education to illustrate and analyse similarities and differences between these two distinct but overlapping concepts.

Table 1. Principles of critical thinking and reflective practice.

Key words	Principles
Willingness	Openness to inquiry and adapting practice and a commitment to experimentation as a learning process
Lenses	Ability to recognise and engage with different viewpoints - to 'look through other eyes' and creatively synthesise multiple perspectives
Unknown	Tolerance of uncertainty and unpredictability and preparedness to 'get it wrong' and engage with and negotiate unknowns. (Knowing what you don't know.)
Self	Ability to develop personal lines of enquiry with the self-awareness to interrogate or critically assess instinct, intuition and feelings
Metacognition	Ability to identify and (re)conceptualise abstract ideas that synthesise theory and practice
Communication	Ability to articulate and present ideas that synthesise theory and practice
Teacher-Researcher	Seeing oneself as a contributor to the wider research community

Table 2. Student evaluations of the seven principles tested through a range of activities.

Learning activities	Debating policy and practice				Framing		World Café
	C1	A1	B1	B2	B3	A4	B4
Student groups	N=15	N=27	N=15	N=7	N=14	N=14	N=16
Principles							
Willingness	4.4	4.2	4.2	4.1	4.2	4.3	4.3
Lenses	4.5	4.3	4.7	4.1	4.4	4.1	4.7
Unknown	3.6	3.8	4.1	4.0	3.6	4.1	4.3
Self	4.3	4.2	4.1	4.1	4.1	4.1	4.9
Metacognition	4.0	4.1	4.0	4.1	3.8	4.1	4.2
Communication	4.0	4.0	4.1	4.4	4.0	4.1	4.4
Teacher as researcher	4.0	4.1	3.6	4.3	3.6	4.5	3.7

Notes: Mean scores of responses on 5-point Likert scale: 5: strongly agree. 4: agree. 3: neutral. 2: disagree. 1: strongly disagree.
Institutions and student groups are coded anonymously A-C.

Philosophy

In the domains of philosophy and the social sciences, Bourdieu proposes the reflective practice of critical self-appraisal as a starting point for all work: 'since social science is a socially constructed account of social construction, it must take itself as an object of study' (Bourdieu 2004, 88). This includes reflection on one's attitudes, beliefs and preconceptions and relates to experiences and understanding of the world. Critical thinking is also often associated, in philosophy, with the formal structures of logic and in the formative assessment of reasoning skills. Fisher and Scriven (1997) identify fours areas of competency: interpretation; communication; knowledge; technique and delineate subsets of skills within these four domains. In addition to skills in logical reasoning, Glaser (1941) suggests that critical thinking requires an attitude of openness, thoughtfulness and persistence towards enquiry. Philosophy also moves beyond the argumentation and assessment of critical thinking to consider the processes it involves. Fisher (2001) observes that critical thinking is a metacognitive process and highlights the creativity involved in this process, and Norris and Ennis (1989) identify a reflective capacity and reason as components of this skill. Critical thinking involves a capacity to reflect on one's own processes of thinking. This suggests that a type of internally directed practice of reasoning and creative thinking about thinking is at work. Correspondingly, McPeck (1981) cites student capacity and willingness to actively engage in the activity of critical thinking as essential to the development of this skill. Philosophical approaches to critical thinking and reflective practice therefore highlight a tension between learned, formal structures of self-critique and reasoning and the personal qualities and motivations of the student.

Psychology

The requirements of reflective practitioners and critical thinkers in the discipline of psychology overlap with those identified by the philosophers above. Buskist and Irons define critical thinking in the context of psychology as the ability to 'accurately

explain (their) decisions (**.. .**) and develop and present reasoned and persuasive arguments' (2008, 51). In contrast, Edwards (2000) stresses the role of interactive development, which refers cognition to experience and vice versa positioning experience as the basis for learning about the self and the world. Experimental and educational psychologist, Ann Brown (1992), thinks assessing the skills of problem solving, critical thinking and reflective learning are integral to the ultimate aim of transforming classrooms into 'communities of learning' (141) and describes students as 'co-investigators of their own learning' (165). She argues for the notion of 'guided discovery' and stresses the responsibility that this places on teachers to foster this process in their practice (169).

These observations are helpful for the context of postgraduate professional training since we seek an appropriate model for student-practitioners to use in their classroom practice, in their engagement with research in relation to practice, and for the effective communication of ideas in a postgraduate and professional capacity. We are also cognisant of student-practitioners as teachers in their own classrooms, modelling these skills for their pupils and of our own position as researchers in enacting the models of critical thinking and reflective practice we wish to promote.

Education

Educational discourse around critical thinking and reflective practice emphasises personal experience as an essential component in the learning process and that learning should be to some extent self-directed (Baxter Magolda 2009; King 2000; Smith 2011; Urzúa and Vásquez 2008). Bolton (2010) observes that the term 'reflective practice' has mirror-like connotations, producing a superficial reflection of the self. Instead, she advocates a 'through-the-mirror' approach, a turn of phrase she borrows from Lewis Carroll's *Alice Through the Looking-glass and what Alice Found There* (1871), in which we venture through the mirror, like Alice, to experience things from alternative viewpoints and scenarios. Bolton's notion of through-the-mirror emphasises the need for internal inquiry, putting oneself in another's shoes, and exploring the world from different perspectives. This type of reflective learning concerns challenge and tolerance of uncertainty (Schön 1983) and the search for resolutions. This development of knowledge and learning is seen as a dynamic and life-long process. Kolb (1984) suggests that this process is cyclical and continuous where skills of self-criticism, abstraction and (re)conceptualisation are developed through the stages of concrete experience, reflection, abstract conceptualisation and active experimentation. These models entail an understanding and awareness of the processes of one's own learning and recognition of the contingency of experience and social context (Andresen, Boud, and Cohen 1993). This emphasis on the socio-emotional context of learning resonates with Dewey's conceptualisation of reflective practice as a holistic way of responding to problems which engage the intuition, emotion and passion of teachers (1910).

Synthesising critical thinking and reflective practice

Bolton's differentiation of the terms reflexivity and reflection provides a neat synthesis of the relationship between critical thinking and reflective practice since she assigns openness to different perspectives and the views of others to the former and an

engagement with self-enquiry to the latter (2010). Wilson and Baird suggest that critical thinking involves pragmatism, that is, the testing of authenticity or the truth of ideas through experience (1997). This reciprocal blending of practice and theory suggests that practice might be critically analysed and developed though critical thinking and that theories developed through critical thinking may be tested and revised through reflective practice. For educational theorist Marie (2008), proximal and distal knowledge are necessary to the process of critical thinking. Marie uses the analogy of the blind man using a stick, where the stick's extension is proximal, or the knowledge the researcher has of the discipline, and the surroundings are distal, or 'the solution to the problem' (152). This transaction model requires the ability to represent ideas or theories between the spheres of practice and theory, suggesting the need identified by Jenny Moon (2008) for a facility with language. However, the ability to identify, extract and transpose ideas also pertains to the realm of imagination and to reconfiguring ideas and practices. Agreeing with Moon that critical thinking requires language skills, Marie adds that critical thinking involves a process of creativity.

In summary, reflective practice concerns the self and an understanding of the world. It consists of inquiry into the processes of one's own learning and consideration of one's engagement with teaching and learning. It involves passion, the recognition of intuition and analysis of emotions. It takes the form of a cyclical and continuous process, which requires an ability to negotiate uncertainty. Critical thinking is concerned with the exchange and development of knowledge through engaging with other perspectives. It embraces structures of formal argumentation (logic), incorporating abilities in synthesis and evaluation and skills of presenting and communicating viewpoints. It involves metacognition, or reflecting on the thinking processes. The two concepts differ in orientation towards enquiry. Reflective practice is more inwardly directed, with an investigation of practice and experience. Critical thinking moves outward, towards others, to pursue multiple lines of enquiry, some of which touch upon the self or practice.

This critique shaped our approach to student critical thinking and reflective practice skills and our selection of learning activities (see for example Caroll, Keniston, and Blaine 2008; Fisher 2001; Foley 1995; Marie 2008; Moon 2008: Wenrich-Wheeler 2008). A notable reference point for a number of studies was the classic children's novel by Lewis Carroll (1871), *Alice Through the Looking-Glass and what Alice Found There*. The challenges and problems faced by Alice are frequently used to illustrate feelings of uncertainty and challenge, shifting perspectives, and the analysis of the self, often associated with critical thinking and reflective practice. We found this point of reference helpful in conceptualising and illustrating the underlying skills and techniques to be targeted in critical thinking and reflective practice activities.

Towards a framework of principles

The premise of the study was that critical thinking and reflective practice are essential skills for teachers of the deaf in their working environments and also necessary abilities for postgraduate-level study. Equally, these are important tools (for academic programme leaders and student-teachers) in mediating the acknowl- edged gap between researchers and practitioners. In light of this, this paper recognises and extends the work of Smith who identifies and provides a rationale for 'more structured and theoretically informed teachings of critical reflection in

higher education' (2011, 211). From the synthesis of theories and practices of critical thinking and reflective practice the authors identified seven different areas of skills or domains of development. We present these as a framework of principles using key words to encapsulate the essence of each skill in   Table 1.

Learning activities

Different activities were trialled locally by different institutions to promote development in the seven domains. This enabled the project to build in contingency and to be sensitive to the learning contexts and timescales of the different institutional programmes. Three learning activities were selected in total:

(1) A formal debate between students on controversial aspects of policy and practice in deaf education adjudicated by an independent chair.
(2) A 'framing' activity using visual thinking tools (photograph and imagery) to conceptualise, focus and articulate practice and research problems (Wadsworth 2001).
(3) A 'World Cafe' to facilitate discussion between students around complex and controversial research issues in deaf education (www.theworldcafe.com).

We identified how the planned activities with stated aims and objectives enabled student-practitioners and their tutors to assess the success of the activities in targeting the abilities in the critical thinking and reflective practice principles framework. Students graded the activity against the principles using a 5-point Likert scale and wrote qualitative feedback. This enabled tutors to analyse the framework itself retrospectively, which we consider in our discussion.

Analysis and results

Four institutions were involved in trialling and evaluating learning activities with groups of ToD students. Student numbers in each group ranged from 7 to   29 individuals, depending on individual institutions. Combining the data from the four institutions gives an indication of the national, rather than local, applicability of the identified domains. Data was not used to compare scores across institutions. We present two levels of analysis separately. The first level presents the description of Likert scale data and qualitative comments from students about the activities. The second level examines the activities for general themes and responses to the framework of principles.

First-level analysis

Using the numerical data from the Likert scale we describe the mean, distribution, and range of scores for the seven principles to analyse the extent to which different activities promoted the development of the skills identified by the principles. Table 2 shows the results of the three activities trialled. Three institutions tested the debate activity. Two institutions used the framing activity. Three institutions trialled the 'World Café' activity, although only one of these collected Likert scale data.

A first look at the Likert scale data shows that student scores were consistently high across all activities. More than 95% of the activities received 'strongly agree' or 'agree' ratings for targeting the principles and none are rated as 'disagree' or 'strongly disagree'. Variations in the numerical data are thus subtle, rather than strong. The range of results is narrow between the participant groups with all groups averaging over 4.0 across the principles. However, the qualitative feedback illuminates differences in students' insights about the activities which are not revealed by the numerical data. Bringing the two types of data together enriches and provides a more nuanced understanding of the findings.

Debating

The table shows four sets of data for the debate activity. This was collected from three institutions; one institution trialled the activity twice with different groups of students. For the debating activity the mean scores ranged from 3.6 to 4.7. The lowest scoring principle was 'unknown' and the highest was 'lenses'. In the qualitative feedback, students report enjoyment and full engagement in the activity acknowledging and appreciating the challenge it posed:

> The debate was fantastic and allowed me to [.. .] question my own beliefs.
> [.. .] great way of churning over the issues.

But there was also some uneasiness about a perceived lack of direction and some comments that communicate a lack of understanding of the learning process and a desire for a more didactic approach:

> [.. .] more teaching input please [.. .]
> [.. .] more face to face input about the assignment [.. .]

The objective of the debating activity was to encourage students to articulate and challenge their own perspectives about approaches in deaf education and to develop their critical approach to policy and practice. The tension perceived by some students between developing these skills and achieving practical competencies is illustrated by the low score given for 'unknown'. However, the mean scores overall and the high score against 'lenses' reflects the success of the activity in developing these qualities and enabling students to see policy and practice issues in other ways.

Framing

For the 'Framing' activity, mean scores ranged from 3.6 to 4.5. For one group 'lenses', 'unknown', 'self', 'metacognition' and 'communication were equal-lowest scoring principles, while 'teacher as researcher' was highest. For the other, 'unknown' and 'teacher as researcher' are equal-lowest scores with 'lenses' highest. In the qualitative feedback from both institutions, students responded positively to the activity, which they described as 'thought-provoking' and a powerful way to provoke discussion:

> Discussion between colleagues was perfect in generating research ideas [.. .]
> New thinking [.. .] ideas [.. .] space to think

However, evidence also suggests that some students were looking for more instrumental outcomes from the training:

> More practical strategies for teaching deaf children
> More support for getting mainstream managers to understand the course

The framing activity had a number of objectives: to promote reflection and self-observation and the ability to look from different perspectives; to question concepts; and to bring research into practice. The two institutions used the principles to adapt the framing activity to match learning needs of groups in their respective programmes by using different visual materials. The results show that the principle of the 'unknown' remains uncomfortable but, for one group, this activity successfully promoted the students' view of themselves as contributors to the research field. For the other group, the activity was considered unsuccessful in this area, suggesting that the students experience a gap between their practice and the wider research community. That this principle was rated so differently by the two groups suggests that the student understanding of this principle remains ambiguous.

World Cafe´

Only one set of Likert data was collected for the World Cafe´ activities, although the activity was trialled in three institutions. However, three sets of data were collected using open qualitative questions. World Cafe´ mean scores ranged from 3.7 to 4.9. The lowest scoring indicator was 'teacher-researcher' and the highest was 'self'. This represented the highest overall score across all of the activities. The students' qualitative comments in response to this activity were detailed and enthusiastic. Students found it 'interesting and thought provoking'. They enjoyed the different approaches to learning, which included: 'scribbling ideas' on table cloths and the use of a table facilitator to 'draw in and focus the discussion'. Students expressed a wish to repeat this activity, commenting that the cafe´ atmosphere was a 'relaxed and informal way to 'gain and share knowledge', 'encourage reflective thinking' and present intellectual challenges:

> A good way to get us to think!
> At the time I felt very uneasy - now feel it was very useful. Thanks
> [.. .] made me realise 'we' are the best resource

However, an element of unease remained about the type of knowledge generated by this activity and how to employ it. Students suggest that a tutor should be 'posted' with each group. They expressed a desire for handouts to remember what was said, and for:

> More explicit links and examples to the course
> More discussion about assignment

The objectives of the World Café activity were to promote a questioning approach; to challenge preconceived ideas; encourage a reflective approach and stimulate creative thinking. This activity achieved a much higher score in the 'unknown' category in comparison to the other activities. This suggests that the World Café formula generates a preparedness to 'get it wrong' and negotiate unknowns. This is consistent with the high score for 'self' indicating that the opportunity to develop personal lines of enquiry and self-awareness perhaps builds the confidence to permit exploration into unknown territory.

Second-level analysis

We analysed data from all the activities to examine the students' responses to the framework of principles. For this process, we collated all the open question feedback from all of the institutions. The analysis involved the selection and naming of themes and sub-themes from this written data, acknowledging that this is not a linear process and that there are cycles of analysis within each stage (Krueger and Casey 2000). The first cycle comprised initial familiarisation with the data. Two analysts from the PI team compared their notes and preliminary identifications of themes and important segments of the written data. The next cycle involved the listing and cataloguing of themes by analyst one. This was moderated by analyst two for agreement. Working independently in this cycle provided the means to resolve interpretative issues. Four overall themes were agreed. Each analyst collected short sentences, phrases or single words to illustrate the four themes, which were: perspectives, uncertainty, learning styles and discovery.

Perspectives

A prevailing theme was the different ways of looking at a topic through communication and discussion. Students talk about the value of different perspectives and suggest ways in which these can be shared through group work and 'networking'. They refer to the way in which the consideration of different points of view broadens their knowledge base. The students perceived that they could gain a deeper understanding of deaf education from each other - 'we are our own best resource' - and through the activities, as well as from those working outside the discipline in interrelated fields.

Uncertainty

Uncertainty was a recurrent concern. In their feedback, the students associate feelings of uncertainty with 'risk taking' and 'spontaneity'. However, these are generally reported as positive experiences. Less transformative was the uncertainty expressed about the timing, mechanics and milestones of the postgraduate training and qualification. Students wanted to know or understand how activities 'map' onto the overall structure of the programme. They sought to identify 'links' between activities and the assessment and particular anxiety was expressed around assessment and expectations. The data suggest that the students have difficulty in tolerating uncertainty and engaging with unknowns. These feelings of unease or uncertainty may be related to confidence about subject knowledge and professional experience. It

would be interesting to explore whether feelings of 'uncertainty' may become more comfortable if explored from the view point of others rather than the self. For example, the World Café activity, which scored highest for 'unknown', asked students to post-anonymous questions about salient issues in deaf education enabling students to share challenges and uncertainties without having to 'own' concerns.

The learning environment and learning styles

Students demonstrate awareness and concern with learning styles and the learning environment throughout the feedback. At the most basic level, they wish to be physically comfortable in their working environment but they also appreciate the importance of a 'supportive atmosphere'. Students also describe different ways of participating and there is attention to the different leaning needs of deaf and hearing students. Emphasis is placed on the importance and value of group and interactive work. However, there is a tension in their feedback between an appreciation of the freedom for reflective interrogation or 'space to think' and the structure provided by a tutor 'to keep us on track'. Frequently, in the feedback, the need for direction is articulated alongside an appreciation of being 'pushed to achieve' and having pre-conceptions challenged'.

Discovery

Evident throughout the student feedback was a sense of discovery. This is communicated in terms of learning about self as they articulate the challenges of professional development - 'it made me think of stuff I haven't thought of before' - and also through the surfacing of 'new thinking and ideas [.. .]'. There are expressions of critical awakening and awareness as they talk about questioning their own 'beliefs' and having their 'thinking challenged' along with recognition of personal development and enlightenment: 'It's quite amazing to think I've travelled so far'.

Discussion

At this point, we turn the lens of enquiry back on ourselves as investigators by examining the responses to each principle in order to evaluate the framework as a tool. The presentation of the framework of critical thinking and reflective practice principles on the evaluation form presented opportunities and limitations. Each principle of critical thinking and reflective practice was defined for the students. This orientated student thinking about their relationship to these goals providing, from the start, shared ownership and the 'teaching' of these objectives as suggested by Marie (2008) and Smith (2011). To aid student evaluation on the feedback form, there was also a statement of the learning goals, which made the objectives for each activity transparent. Although students were asked to evaluate activities at the end of each session, the critical thinking and reflective practice component(s) of each activity was not made explicit at the beginning. It could be considered that there would be some benefit in a consultancy procedure with the students at the beginning of the course to discuss reasons for developing these skills with them and the uses and applicability of these skills in both professional and HE contexts.

   The design of the Likert scale self-evaluation statements placed the responsibility for learning on the students and asked them to consider their own development. The use of the first person pronoun to respond to the principles may be considered to be more oriented towards the 'self': that is, towards reflective practice rather than 'others/world' perspectives, which relate more towards critical thinking. Yet, the results of the thematic analysis suggest that the activities also successfully promoted 'perspectives': the exploration of ideas from new and different viewpoints, which can be linked to the area critical thinking.

   It is possible that principles were considered to be targeted only by certain activities and not at all by others. This may mean that the skills targeted were judged to be common to all activities. Another possibility is that some principles were less clearly defined or that some students found these more difficult to identify in comparison to others (Fisher 2001; Fisher and Scriven 1997; Norris and Ennis 1989). It can be argued that the use of this pre-determined set of definitions imposed a set of ideas on students about their postgraduate training, which may have constrained their own conception of academic and professional development. The framework could therefore be further developed in the future through consultation with students about their understanding of the principles and their relationship to both professional and HE contexts. This could be achieved by incorporating the students' language into the definitions of the principles, thus encouraging their 'prospective reflection' (Urzúa and Vásquez 2008). Although, the framework in its present form corresponds to and maps key skills of critical thinking and reflective practice identified by the literature review, it could be adapted to different professional and academic fields, and, potentially, to the different perspectives, 'languages' and identities of participating students. It is proposed as a flexible tool.

Conclusion

Analysis of the combined quantitative and qualitative data provided insights into the learning issues for this group of students in postgraduate professional training. The project investigators, cognisant of policy and practice issues in deaf education, sought to identify and facilitate training in a set of life skills, integral to success in both academic and professional environments. The framework produced navigates between instrumental competencies and the development of critical and reflective practitioners. This paper presents and critiques the framework of critical thinking and reflective practice principles and offers insights pertinent, it is hoped, not only to the field of deaf education but to colleagues in other areas of professional postgraduate development.

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