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# REFLECTION IN TEACHER EDUCATION: TOWARDS DEFINITION AND IMPLEMENTATION

NEVILLE HATTON and DAVID SMITH

The University of Sydney, Australia

**Abstract**—Reflection is claimed as a goal in many teacher preparation programs, but its definition and how it might be fostered in student teachers are problematic issues. In this article, a report is provided of a review of literature on reflection, in particular focusing on strategies which assist its development in preservice programs. Next there is outlined a research project where types of reflection have been defined and applied to an analysis of student writing. Finally, the authors propose a framework for types of reflection as a basis for further research development in teacher education.

In the past 10 years, the terms "reflection" and "critical reflection" have increasingly appeared in descriptions of approaches to teacher education. It is clear, however, that the terms are often ill-defined, and have been used rather loosely to embrace a wide range of concepts and strategies. The authors of this article have been engaged in the design and delivery of a Bachelor of Education (Secondary) program which seeks to encourage "the development of competent and reflective professionals". They are undertaking an investigation of reflection, and the manner in which it may be fostered in students during initial preparation for teaching.[1]

The sections of this paper reflect the major stages of the research so far undertaken. Part 1 sets out the findings of a literature review, which is not exhaustive, but focuses upon attempts to facilitate the development of reflection in student teachers. It demonstrates the problematic nature of defining and researching reflective concepts and techniques, together with the very wide range of meanings assigned to terms associated with reflection. Part 2 outlines the design for the study undertaken at the University of Sydney into how reflection may be operationally defined, encouraged, and investigated, together with what the findings of that research were. Then the authors put forward their current position on reflection and the possibility of its development in intending teachers, drawing in particular on a recently published comparative study of seven U.S. programs which were consciously designed to develop reflective approaches in participants (Valli, 1992).

## Part 1. Definitions of Reflection and Their Implications

Historically, Dewey (1993), who himself drew on the ideas of many earlier educators such as Plato, Aristotle, Confucius, Lao Tzu, Solomon, and Buddha (Houston, 1988), is acknowledged as a key originator in the twentieth century of the concept of reflection. He considered it to be a special form of problem solving, thinking to resolve an issue which involved active chaining, a careful ordering of ideas linking each with its predecessors. Within the process, consideration is to be given to any form of knowledge or belief involved and the grounds for its support (Adler, 1991; Calderhead, 1989; Cutler, Cook, & Young, 1989; Farrah, 1988; Gilson, 1989). His basic ideas

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are seminal, and indicate that reflection may be seen as an active and deliberative cognitive process, involving sequences of interconnected ideas which take account of underlying beliefs and knowledge. Reflective thinking generally addresses practical problems, allowing for doubt and perplexity before possible solutions are reached.

Four key issues with regard to reflection emerge from Dewey's original work and its subsequent interpretation. The first is whether reflection is limited to thought process about action, or is more inextricably bound up in action (Grant & Zeichner, 1984; Noffke & Brennan, 1988). The second relates to the time frames within which reflection takes place, and whether it is relatively immediate and short term, or rather more extended and systematic, as Dewey seems to imply (Farrah, 1988; Schön, 1983). The third has to do with whether reflection is by its very nature problem-centred or not (Adler, 1991; Calderhead, 1989; Schön, 1987). Finally, the fourth is concerned with how consciously the one reflecting takes account of wider historic, cultural and political values or beliefs in framing and reframing practical problems to which solutions are being sought, a process which has been identified as "critical reflection" (Gore & Zeichner, 1991; Noordhoff & Kleinfeld, 1988; Smyth, 1989).

In relation to **reflective thinking versus reflective action**, there seems to be wide agreement that reflection is a special form of thought (Kremer-Hayon, 1988; Waxman, Freiberg, Vaughan, & Weil, 1988; McNamara, 1990; Sparks-Langer & Colton, 1991). But Dewey himself also spoke of "reflective action" presumably addressing the implementation of solutions once problems had been thought through, and it is clear that most writers are concerned with the complete-cycle of professional "doing" coupled with reflection which then leads to modified action (Gore & Zeichner, 1984; Noffke & Brennan, 1988). It may be useful to contrast this cyclical idea with routine action, which derives from impulse, tradition, or authority. Reflective action is bound up with persistent and careful consideration of practice in the light of knowledge and beliefs, showing attitudes of open-mindedness, responsibility, and wholeheartedness (Noffke & Brennan, 1988).

Schön (1983, 1987) clearly writes about reflection that is intimately bound up with action. Rather than attempting to apply scientific theories and concepts to practical situations, he holds that professionals should learn to frame and reframe the often complex and ambiguous problems they are facing, test out various interpretations, then modify their actions as a result. He talks about "reflection-on-action" and "reflection-in-action", the latter implying conscious thinking and modification while on the job. But both his forms of reflection involve demanding rational and moral processes in making reasoned judgements about preferable ways to act.

A further issue related to the links between reflective thought and action concerns the **time frames** within which both occur. Schön's "reflection-in-action" (1983, 1987) involves simultaneous reflecting and doing, implying that the professional has reached a stage of competence where she or he is able to think consciously about what is taking place and modify actions virtually instantaneously. Most other kinds of reflection involve looking back upon action some time after it has taken place. Certain models of what has been termed "technical reflection" (Cruikshank, 1985; Killen, 1989) appear to be based on thinking about skills or competencies with a view to evaluating their effectiveness almost immediately after an attempt at implementation, and then making changes to behaviour. Other models of reflection (Gore & Zeichner, 1991; Smith & Lovat, 1991) are based on encouraging deliberation over a relatively extended time about the purposes of action with a view to exploring alternatives which might be implemented in the future. Indeed, some seem to argue that reflection involves conscious detachment from an activity followed by a distinct period of contemplation (Boud, Keogh, & Walker, 1985; Buchmann, 1990; Pugach, 1990).

With regard to **reflection and problem solving**, while there is some consensus that reflection is centrally concerned with finding solutions to real problems (Adler, 1991; Calderhead, 1989; Cutler, et al., 1989), questions can be raised about whether solving problems should be considered an inherent characteristic of reflection. Some proponents would argue by their logic or practice that its essential nature is thinking about action. This may involve processing while a group event is taking place, or debriefing after a specific experience for the purpose of developing insights, in terms of a clearer understanding of the rela-

tionships between what took place, the purposes intended, and difficulties which arose viewed within broader cultural or professional perspectives (Pearson & Smith, 1985). Certain approaches labelled as reflective which are being employed currently, such as the use of journals or group discussions following practicum experiences, though encouraging reaction to practical events, often are not deliberately directed towards the solution of specific practical problems.

The term **critical reflection**, like reflection itself, appears to be used loosely, some taking it to mean no more than constructive self-criticism of one's actions with a view to improvement (Calderhead, 1989). It can be argued, however, that the concept of critical reflection implies the acceptance of a particular ideology, along with its accompanying assumptions and epistemology (Gore, 1987; McNamara, 1990; Wildman & Niles, 1987; Zeichner & Liston, 1990). Taken together, these form a particular theoretical framework for reflection, as outlined below. The one outlined by Dewey to some extent illustrates these points, as do the frameworks of Zeichner or Smith and their associates, especially in terms of what is the particular focus point of any reflection (Noffke & Brennan, 1988).

Critiques of reflection (Gore, 1987; Pearson & Smith, 1985) often make use of the hierarchy outlined by Van Manen (1977), who proposed three levels derived from Habermas (1973). The first level, *technical reflection*, is concerned with the efficiency and effectiveness of means to achieve certain ends, which themselves are not open to criticism or modification. The second, *practical reflection*, allows for open examination not only of means, but also of goals, the assumptions upon which these are based, and the actual outcomes. This kind of reflecting, in contrast to the technical form, recognises the meanings are not absolute, but are embedded in, and negotiated through, language. The third level, *critical reflection*, as well as including emphases from the previous two, also calls for considerations involving moral and ethical criteria (Adler, 1991; Gore & Zeichner, 1991), making judgements about whether professional activity is equitable, just, and respectful of persons or not. In addition, critical reflection locates any analysis of personal action within wider socio-historical and politico-cultural contexts (Noffke & Brennan, 1988; Smith & Lovat, 1991; Zeichner & Liston, 1987).

Schön's framework is able to incorporate all levels or kinds, including critical reflection. His *reflection-in-action* and *reflection-on-action* involve an epistemology of professional practice based upon knowing-in-action and knowledge-in-action (Alricher & Posch, 1989; Munby & Russell, 1989). Such tacit knowledge is derived from the construction and reconstruction of professional experience, in contrast to applying technical or scientific rationality (Adler, 1991; Polanyi, 1958, 1667; Schön, 1983, 1987). Reflection-in-action, an element of knowing-in-action, occurs while an action is being undertaken. It is therefore seen to be one means for distinguishing professional from non-professional practice (Feiman-Nemser, 1990; Schön, 1983, 1987). It may be characterised as part of the artistry or intuitive knowledge derived from professional experience (Gilson, 1989) and includes engaging in a reflective conversation with oneself, shaping the situation in terms of the reflector's frame of reference, while consistently leaving open the possibility of reframing by employing techniques of holistic appraisal (Alrichter & Posch, 1989).

While different contexts in teacher education may lend themselves more to one kind or level of reflection than another (Calderhead, 1989), it is important that the types are not viewed as an increasingly desirable hierarchy. Technical reflection is an essential aspect of initial student teacher development and a precursor to other kinds of reflection (Fuller, 1970; Gore & Zeichner, 1991; Hall, 1985). For example, Cruikshank's "reflective teaching" involves the use of microteaching to assist in developing student teacher competence (Cruikshank, 1985; Cruikshank, Kennedy, Williams, Holton, & Faye, 1981). While claims about the benefits of this approach have been asserted (Killen, 1989), little research evidence has been presented, and any reflection involved seems to be fairly superficial, confined to whether ends have been achieved. Nonetheless, it may constitute a basis for providing tools which will enable other forms of reflection to develop.

But the argument that teacher education should also be concerned with questions of equity and justice, developed through strategies which stimulate critical reflection, has been advanced with some vigour (Cutler et al., 1989; Noffke & Brennan, 1988; Smyth, 1989). The theoretical framework for reflection adopted by

a particular program will depend upon its purposes and focus, and therefore in turn upon the assumptions about teaching and teacher education upon which these are based. For instance, Gore and Zeichner (1991) have identified four varieties of reflective teaching practice, each with its own underlying ideology, which are outlined in some detail in a later section.

*Strategies Claimed to Promote Reflection*

A wide variety of approaches has been employed in attempts to foster reflection in student teachers and other intending professionals. Not all appear to be appropriate for stimulating reflection, and there is little research evidence to show how effective they are. At least four broad strategies can be distinguished, as follows.

1. Action Research Projects (Carr & Kemmis, 1986; Pugach, 1990; Sparks-Langer & Colton, 1991; Zeichner, 1986).
2. Case Studies and Ethnographic Studies of students, teachers, classrooms, and schools (Ross, 1989; Sparkes, 1991; Stoiber, 1990).
3. Microteaching and Other Supervised Practicum Experiences (Cruikshank, 1985; Sparks-Langer & Colton, 1991; Zeichner, 1986).
4. Structured Curriculum Tasks (Ben-Peretz, 1984; Beyer, 1984; Smith, 1991).

Within these overall approaches more specific techniques may be used, such as various versions of reading fiction and non-fiction (Tama & Peterson, 1991), and oral interviews (Andrews & Wheeler, 1990; Smith, 1991). Writing tasks are often employed (Cutler et al., 1989; Sparks-Langer & Colton, 1991; Surbeck, Park-Han, & Moyer, 1991), most frequently based upon keeping journals. It is claimed these allow students to find their voice (Freidus, 1991) and by deliberately making explicit their own thoughts and actions, foster reflection (Andrews & Wheeler, 1990; Wedman, Malios, & Whitfield, 1989). The effectiveness of such techniques may depend very much on prior structuring, while serious questions must be raised about the veracity and ethics of journal writing which is to be assessed. Genres apart from journal writing have also been used, including narratives and biographies, as well as reflective essays focused upon neophytes' own experiences as students (Connelly & Clandinin, 1990; Gore & Zeichner, 1991; Ross, 1989; Wellington, 1991). The use of students' metaphors of teaching as a basis for reflecting upon their underpinning assumptions, and how these can inform solutions to teaching dilemmas, has also been advocated (Bullough, 1989, 1991; Marshall, 1990).

While the above strategies all have the potential to encourage reflection, there is little research evidence to show that this is actually being achieved. It is necessary to move beyond self reports to the identification of ways in which reflective processes can be evidenced. It is not sufficient to assert that reflection is encouraged by a procedure or technique, rather means must be specified to demonstrate that particular kinds of reflecting are taking place (Smith & Hatton, 1992, 1993). Further, there is a need for longitudinal studies that follow students into their first years of teaching, again with a clear demonstration of the ways in which reflective approaches are being retained, developed, or lost.

*Problems Associated With Reflection*

There are a number of barriers which hinder the achievement of reflective approaches. These include existing preconceptions about teaching as a profession, the essential preconditions which allow student teachers to develop reflective capacities, their possible responses to being required to undertake reflection, and the structural and ideological program milieu within which various kinds of reflecting are being encouraged.

First, problems can arise because **reflection is not generally associated with working as a teacher**. Teaching is often seen to be primarily about the immediate present and instant pragmatic action, while reflecting is perceived as a more academic pursuit (Elbaz, 1988; McNamara, 1990). An emphasis upon reflection too soon in their preparation may be alienating to neophytes. It can become difficult to sustain, for student teachers may see it as a rather esoteric and useless diversion from mastering the technical skills and content of teaching which they regard as essential, especially early in their training (Hall, 1985; Zeichner, 1990). In a study of American programs designed to encourage reflective approaches (Valli, 1992), problems of this kind were identified as obstacles to the implementation of reflective teacher education. In particular, **the persistence and strength of participants' own**

**conceptualisation of teaching** proved a considerable barrier. For example, many students in the Florida PROTEACH program were seen to comply on the surface with strategies used to encourage reflection, but their deep positions reflected a fixed view of the nature of teaching which they had developed prior to entering the program. There was some evidence of resistance resulting from preconceptions in a small number of students who participated in the Sydney program which is described in some detail below, and in a few cases their views of teaching were so instrumental that they resisted going beyond basic descriptive reflection.

Second, in order to foster effective reflection, what is needed is **time and opportunity for development**, so that the required essential meta-teaching and metacognitive skills can be acquired (McNamara, 1990; Noffke & Brennan, 1988). It appears necessary to adopt a developmental approach, where the early concerns of students for survival skills can be addressed through technical means, which in turn then become the focus for attempts at descriptive reason-giving using narrative and biography. These then may provide a basis for moving on to other forms of reflection which take account of a wide range of factors, including broader socio-political contexts (Elbaz, 1988; Hall, 1985; Smith & Hatton, 1992). An associated difficulty concerns the identification of **a suitable knowledge base** as a starting point for helping student teachers first understand concepts of reflection and then apply especially the more demanding forms to their own teaching.

Some helpful advice which addresses these last two issues is provided by Zeichner (Valli, 1992, pp. 161–168) who identifies from an historical point of view some of the major perspectives which have guided approaches to teacher education. There is the *academic* tradition (e.g., Shulman, 1987) where teachers grasp the essentials of how to transform discipline knowledge in order that school students might learn it. Then there is the *social efficiency* tradition (e.g., Good, 1990), where teachers attempt to develop best practice, based as far as possible on research findings. Next he notes the *developmentalist* tradition (e.g., Piaget, 1976) where the stress is on teachers understanding and applying how students through time grow and change in their behaviour and thought patterns. These three are identified as traditions which largely take the existing social and political order as a given. Lastly he identifies the *social reconstructionist* tradition (e.g., Carr & Kemmis, 1986) where teachers should work at changing their own practices, because schools continue to reproduce a society based upon unjust class, race, and gender relationships. He acknowledges there is overlap between the traditions, and the potential place each may have as perspectives, but not the sole one, to be taken in a teacher education program. During the course of the Sydney teacher education program, students are exposed in turn to each of these traditions, though any integration is left largely to individuals as they progress through their 4 years of study.

Third, **likely reactions to demands for reflection** require some attention. Responses on the part of students part might include feelings of vulnerability which follow from exposing one's perceptions and beliefs to others, especially if the locus of control is not seen to be with the individual, who may tend to self-blame for any perceived weaknesses uncovered through reflection (Wilman & Niles, 1987). Such possibilities support a case for collaborative rather than individualistic approaches to reflection, so that a structure is provided within which students can work together as "critical friends" (Dicker, 1990; McNamara, 1990; Smith, 1991; Smyth, 1989). The peer support of student pairs who work with each other is central to the Sydney University program.

In attempting to further define useful strategies for developing reflection in programs of teacher education, one of the writers who offered critiques of the seven American programs provides some helpful insights. Richert sees teachers as learners who must construct their own knowledge of the uncertain business of teaching. She stresses the place of "voice" in this ongoing process, together with the need in teacher education to encourage student teachers to dialogue with themselves and with others as they seek to describe, explain, question, explore, and challenge (Valli, 1992, p. 189). In the process of encouraging reflection, two dimensions are identified. The first is speaking the truth as one sees it, in order to articulate and clarify ideas and beliefs, which is important in its own right, and provides a useful basis for reflection. The second is giving voice to one's ideas and being

heard. Again, she notes the value in learning to listen to and understand what one is actually saying. But as well, she underlines the need for others to truly listen, a characteristic not common amongst either teachers or teacher educators, and well worth developing in preservice students. Such a stance lends support to the idea that even greater opportunities than at present for verbal reflection within the Sydney program should foster further development of reflective capacities, leading on especially to the self-dialogue forms which have the potential to offer powerful insights.

Fourth, problems relate not just to the component parts of teacher education programs, but to **the structure and ideology of total programs**, in order that the development of reflection might be encouraged (Valli, 1992; Zeichner, 1990). A critically reflective approach demands an ideology of teacher education different from that traditionally employed, which usually involves models of "best practice", emphasis on competencies, and unrecognised conflicts between institutional ideals and workplace socialisation. There need to be changes in emphasis and created opportunities which establish appropriate and supportive conditions for fostering in students different kinds of reflection (Calderhead, 1989; Moore, Mintz, & Bierman, 1988). In the Maryland program for instance (Valli, 1992), opposition to the approach being taken demonstrated strongly stated staff conceptualisations of what teaching and learning were all about, and their difficulty in conceiving of any alternative views, let alone co-operating to implement them through a reflective program. So far in the Sydney context, the staffing issues recognised by Valli have not arisen because of the small-scale nature of the program. However, it is currently proposed to quadruple the number of entrants, which will certainly mean a wider range of staff involvement, with the potential for conflicting views.

A number of programs examined in the Valli study identified other overlapping contextual and structural issues, such as the dichotomy between those who viewed preparation for teaching as concerned with immediate skilful solutions to practical problems, and those who see value in standing apart from action in order to see improvement over time through reflective techniques. In part this may reduce to a question of judgement about what can or should be done within the limited period of an initial program of teacher education. Others noted the severe constraints imposed by time limitations in general. For instance, those involved in the Catholic University program recognised that development of more complex or demanding forms of reflection appears to take an extended period for most students. Some staff raised the issue of whether these forms can necessarily be developed in preservice courses, or if they would be more appropriate as a focus for inservice teacher development. The low degree of critical reflection found in the Sydney study in a program specifically designed to develop such perspectives provides some support for this case. However, the counter argument is that reflection is unlikely to develop as a professional perspective in today's busy and demanding world of teacher's work, and techniques fostering a reflective approach need to be provided during initial preparation.

*Studies of Approaches Facilitating Reflection*

In the literature reviewed for this Sydney project, 16 research studies attempted to investigate the effectiveness of approaches employed to develop in student teachers a capacity for reflection. Two were based upon a *Reflective Teaching Instrument* (Kirby, 1988; Kirby & Teddlie, 1989). which appears to be problem-centered, but mainly technical in its focus. Four studies reported research at a program level (Korthagen, 1985; Korthagen & Wubbels, 1991; Ross, 1989; Sparks-Langer, Simmons, Pasch, Colton, & Starke, 1990), two used variations on Action Research (Gore & Zeichner, 1991; Pugach, 1990), and the remainder used one or more of the specific techniques already outlined. While few findings can be related from one study to another, the common conclusion is that there is little evidence of critical reflection on the part of students, most of whom demonstrate the technical and practical types.

While there are problems of design and methodology, several key issues emerge from the detailed review. For a start **definitions of reflection**, especially of the critical form, are often inappropriate or inadequate, and it is clear that the terms are extremely difficult to render operational in questionnaires and other research instruments. Then it would appear that it has

been a considerable challenge to develop **means for gathering and analysing data** so that the evidence shows unequivocally that reflection has taken place.

In interpreting their findings, Gore and Zeichner (1991) and Pugach (1990) emphasised the importance of links between metacognition and critical reflection. The former suggests that teacher education still reinforces a cultural view of teaching which calls for teacher rationality and individualism, failing to establish the political or problematic nature of schooling. The latter proposes that deliberate attempts must be made to familiarise students with the literature of critical reflection. Teacher educators need to develop scaffolded interaction (Palinscar, 1986) as a means for modelling the skills of self-monitoring essential to critical reflection. Other authors (Stout, 1989; Wedman et al., 1989) come to similar conclusions about the need to consciously counter socialisation processes at work in teacher education.

While the findings from 10 years of research into the SOL Mathematics program in the Netherlands showed little evidence of critical reflection (Korthagen, 1985; Korthagen & Wubbels, 1991), the researchers have identified two distinctive student orientations, one external and nonreflective, the other internal and more reflective. The latter group think it important to structure situations, ask questions about what is happening and why, find it easy to identify what they want to learn, have sound interpersonal relationships, exhibit personal security and self-efficacy, and demonstrate concern for their impact on student learning (Fuller & Bown, 1975). A group which used Cruikshank's "reflective teaching" procedures (Cutler et al., 1989) identified in the main evidence of technical and practical reflection. But students did report that they found it was useful being taught and then applying processes for reflecting, though they preferred oral rather than written tasks, and working with someone else, peer or (preferably) a supervisor. Again, support is provided for collaborative reflection, and the importance of modelling and coaching through scaffolded dialogue (Pugach, 1990).

The preceding review of issues which arise from attempts to define the research reflection and the strategies which may foster reflective approaches to teaching with a view to its improvement, led to the formulation of six key questions for the study at Sydney University which is reported in the next section. They include evaluative questions, as well as those of a more theoretical or methodological kind.

- Have the strategies employed resulted in teacher education students demonstrating evidence of reflective practice?
- If so, what types and patterns of reflection can be identified, and what factors seem important in fostering their development?
- What strategies appear to be effective in producing reflection, and what are the salient characteristics of such approaches?
- How can more effective strategies be developed, and how can the conditions for encouraging reflective practice be improved?
- What is the fundamental nature of reflection, and does the nature of evidence change according to types of reflection?

## Part 2. A Study of the Impact of Strategies Designed to Foster Reflection

The present study involved teacher education students undertaking the 4-year secondary Bachelor of Education degree at the University of Sydney. About half the students' courses are taken in the Arts, Science, or Economics Faculties of the University, with a major sequence (3 full years of study) in a subject which they will teach. The other half taken within the Education Faculty involves a generalist major sequence in Education, together with, from Year 2, an increasingly demanding sequence of three Professional courses. Data for the research was collected from the 1991 Year 4 cohort of 26 students, together with the 1992 Year 4 cohort of 34 students. Within their program, these groups have been exposed to a range of the strategies which might foster reflection, as identified in Part 1, especially in two common components which run throughout their professional program, namely *Teaching and Learning*, together with *Practicum*, amounting to half the overall course weighting. (The other half involves Curriculum courses in the methodology of particular subjects they will teach, such as English, History, Social Science, Foreign Languages, or Mathematics.) The researchers were almost totally responsible for *Teaching and Learning* coursework (one 2-

hour seminar over a total of 18 weeks), and have a major role in organising the *Practicum*, though its supervision is shared with other staff members who mainly teach in the various Curriculum courses.

As part of their third year work, these groups of students undertook five fortnightly school-based microteaching sessions, focused upon the basic skills of teaching, including questioning, reinforcement, and explaining (Turney, Ellis, Hatton, Owens, Towler, & Wright, 1983a, 1983b), dealt with in the *Teaching and Learning* coursework, which was a precursor to a linked first 10-day mid-year *Practicum*. The students were required to complete a number of tasks designed to have them reflect upon their skill development in teaching and classroom management before, during, and after the practicum period. In their fourth year, the students engaged in an ongoing reflective process focused at each stage of planning for, implementing, and then evaluating, a unit of work which was taught to one class during a 30-day continuous *Practicum*, also mid-year. This process included peer interviews in "critical friend" dyads particularly at the planning stage, as well as written reports where the student teachers reflected upon the factors which had influenced their thinking and action, especially during implementation and evaluation, including their own perceptions and beliefs. Of special importance were the differences between intentions and actual outcomes, and what caused initial plans to differ from subsequent actions (Smith & Lovat, 1991). The approaches taken are a combination of the Action Research Project and Structured Curriculum Task strategies identified during the literature review.

From the research studies considered and following sustained discussion amongst the research team, reflection was defined as "deliberate thinking about action with a view to its improvement." The study was designed to investigate the nature of reflection in teaching, to define specific forms of reflection, and to evaluate the strategies outlined above in terms of the degree to which they facilitated particular types of reflection in student teachers. The work was informed by the key questions set out at the end of Part 1. Data sources utilised were varied, providing the potential for some triangulation of evidence (Smith & Hope, 1992), and included the following:

- a written report (4000 words) for each student in the 1991 cohort, and two such reports (6000 words in total) from each 1992 student;
- two self-evaluations, one after the Year 3 practicum from all students, and the other after the Year 4 practicum from a sample of the 1992 cohort;
- two 7-minute videotapes of teaching, one towards the end of the Year 3 microteaching, the other after the Year 4 practicum from 13 case-study volunteers in the 1992 cohort;
- a 20-minute interview with pairs from the 1992 cohort undertaken by the project's research assistant at the end of the year, with structured questions seeking their evaluation of the various strategies which had been used, together with reactions to a problematic practicum vignette, where the student teachers were to identify and comment upon issues seen as important.

While all data were analysed, the written reports provided most evidence of reflection, and consequently form the basis for the research study and the outcomes reported below.

### *What Constitutes Evidence of Reflection?*

Although the project began with a review of literature about reflection in teacher education, in particular with a focus upon studies which purported to investigate its actual development in students, the researchers found that this material provided only broad guidelines for beginning to specify more sharply criteria against which evidence of reflection as defined might be evaluated. From ongoing argument and discussion based upon the reading and rereading of written reports, there emerged an operational framework, through a process which illustrates the essential dynamic relationship between data and theory that is characteristic of research dealing with phenomena such as reflection (Smith & Hatton, 1993; Smith & Hope, 1992). The result of this process was the identification of four types of writing, three of which were characterised as different kinds of reflection. Defining characteristics for **descriptive writing, descriptive reflection, dialogic reflection** and **critical reflection** are set out more fully in the Appendix. In essence, the first is not reflective at all, but merely reports events or literature. The second, **descriptive**, does attempt to provide

reasons based often on personal judgement or on students' reading of literature. The third form, **dialogic**, is a form of discourse with one's self, an exploration of possible reasons. The fourth, **critical**, is defined as involving reason giving for decisions or events which takes account of the broader historical, social, and/or political contexts.

Several trial runs confirmed procedures adopted for analysing all the written material. The team was made up of the two authors, a research assistant, and four third-year honours students. Essays were read by one of the team, and units of reflection were identified and categorised. A second person then read another unmarked copy in exactly the same manner. Results were compared, with sustained discussion taking place to resolve differences when they occurred. In addition, within each type of reflection, it became clear that students could adopt single or multiple perspectives in accounting for decisions or events, so this dimension was also considered when essays were coded.

Results from the analysis of written essays demonstrate clear evidence of student teachers in the Sydney University program undertaking reflection in their final year. Only one report from the 1992 cohort showed no evidence of reflection as defined above. Overall, the largest number of reflective units coded for any single written piece was 52, and the smallest 2. The average number of reflective units per written report, each the equivalent of 8–12 typed pages, was 19. The largest proportion of coded units (60–70%) were **descriptive** reflection. On the other hand, instances of **critical** reflection were found in only three reports from the 1991 cohort, and only five from the 1992 cohort. The highest proportion of **dialogic** reflection (more than 30% on average) occurred in the 1992 essays based directly on the "critical friend" interviews.

Overall then, the most common type of reflection was **descriptive**, although it should be noted that there was a reasonably high incidence (nearly 50%) of multiple perspectives evident. A further pattern that emerged was the embedded nature of the reflective units identified. Within the essays, students would often begin with a unit of **descriptive** reflection which then led on to **dialogic** reflection. The descriptive phase often served to establish the context in an initial accounting for what took place, providing a basis for a change of stance within the writing, where further issues and alternative reasons were explored, usually in a more tentative way.

*Issues Arising From the Sydney Study*

The data indicate that within this program of teacher education, a strategy of significance in facilitating the development of reflection is the use of "critical friend" dyads. All pieces of writing used drew on such interviews, or on subsequent individual analysis of their content. This suggests that a powerful strategy for fostering reflective action is to engage with another person in a way which encourages talking with, questioning, even confronting, the trusted other, in order to examine planning for teaching, implementation, and its evaluation. It is a technique which can be structured to provide a safe environment within which self-revelation can take place. Also students are able to distance themselves from their actions, ideas, and beliefs, holding them up for scrutiny in the company of a peer with whom they are willing to take such risks. It creates an opportunity for giving voice to one's own thinking while at the same time being heard in a sympathetic but constructively critical way.

The importance of having others to facilitate reflection was also confirmed through an initial content analysis of the interview data collected. Overwhelmingly, the student teachers identified two strategies employed in the program as being effective in facilitating their own reflection. Both were characterised by a high degree of verbal interaction with trusted others. One involved the tasks based around the "critical friend" interviews, requiring an analysis of their own perceptions and belief as they planned, prepared, and taught a practicum curriculum unit. The other was the staff supervised peer group discussions of videotaped microteaching episodes which had taken place during their third year. A further common characteristic of these two strategies is that they incorporate a written record which could be used later as a stimulus to further reflection.

A preliminary analysis of the videotapes of the 13 students from the 1992 cohort provided no additional insights into reflection. What they did indicate was a sustained use of the basic skills, notably questioning and positive reinforcement, and an increased use of structuring, the strategy

of setting a classroom context for what, how, and why secondary students will be learning. Their interview comments and many instances of reflection in the essays showed use of the technical skills framework as means for analysing teaching events, as well as providing reasons for what took place.

The main evidence for reflection in this Sydney University project was drawn as already indicated from written reports where student teachers were asked to reflect upon the process of their curriculum planning, development, implementation, and evaluating. They could if they chose to also draw upon any relevant journal entries or lesson evaluation records. By its nature this **reflection-on-action** takes place some considerable time after the teaching decisions and events being reflected upon. It is probable, however, that **reflection-in-action** occurred while the events were originally unfolding, so that students were thinking about reasons for what was going on as it happened. It is also likely that students were involved in reflection-on-action during their practicum, deliberating afterwards about what happened during their lessons, mulling over events soon after they took place. But the essays provide only indirect evidence of either kind of reflection, and no way of distinguishing what is being thought about *now* in contrast to *then.* Instances of what was categorised as descriptive writing actually may have stemmed from reflection at or near the time events took place, if only that could have been captured.

Further, the way criteria for different types of reflection have been derived from both the research and analysis of the actual writing of student teachers to a large extent mandates the specific construction of text required before certain reflective forms are recognised. This is particularly the case with **dialogic** reflection, where certain language patterns and syntax are likely to ensure that a particular unit of reflection is so coded. As defined, this kind of reflecting involves stepping back from, mulling over, or tentatively exploring reasons (see Appendix). So examples of language construction such as the following were very likely to produce decisions where the unit was coded as dialogic.

"... This was quite possibly due to ... Alternatively,..."

"... The problem here, I believe, was the fact that..."

"... While it may be true that ..."

"... On the one hand, ..., yet on the other ..."

"... In thinking back, ... On reflection, ..."

"... I guess that being in a school like X has made me aware of ..."

What seems to be occurring is that for text to satisfy the criteria for **dialogic** reflection, it must nearly always be constructed in a certain form. The criteria themselves actually suggest, maybe even impose, a particular construction of text in order for it to constitute evidence of this kind of reflection. This comes close to identifying dialogic as a genre of reflective writing, which is unproblematic so long as it validly represents reflective activity. It becomes problematic only if what is being classified as reflective is not in fact reflection, or if what at present is being passed over is in fact reflective, but goes unrecognised because it does not conform to the genre. It may wall be the case that in any research, the evidence for reflection is being distorted by students' lack of ability to use particular genre constructions. These are issues with important equity implications requiring further investigation.

The difficulties of analysing written evidence also raises questions concerning the nature of the tasks designed to promote reflection. There is first of all inevitably some descriptive writing required to outline the curriculum project being undertaken and its context, though brevity is emphasised. Further, although student teachers in the Sydney Program are told that the aim of the reports is to encourage reflection on practice, and this is reinforced in verbal discussions with them, the interview data from the 1992 cohort suggest that students saw the academic context and expectations of essay writing established within the wider institution as inhibiting their ability and willingness to reflect in an assessable piece of work. The traditional academic genre is characterised by features that are in many ways the antithesis of the personal, tentative, exploratory, and at times indecisive style of writing which would be identified as reflective. As a final point here, another equity issue is raised, because there is some evidence that socio-economic background may facilitate or inhibit the ability to use language in this particular fashion.

While journal or diary writing may by nature allow more opportunities for reflection than essays as traditionally conceived, there are no difficulties associated with using such forms as evidence for reflection. There is the issue of whether the journal or diary is to be assessed, and if so, the manner in which entries are likely to be altered to accommodate to the perceived expectations of the reader, rather than to suit the writer's own ends, as originally conceived for such writing. In addition, many of the entries may be personal, reactive, emotive, and at the time of writing not at all reflective. However, those entries can provide ideal substance for later reflecting upon action, one source of information amongst others which may be drawn upon for a subsequent structured task which asks for reflection-on-action.

Assisting intending teachers to develop the explicit skills which aid reflection is a final issue for attention. As the review undertaken in Part 1 shows, there is some evidence that reflective capacities can be fostered by providing students with strategies and experiences which develop the required metacognitive skills. In the past the Sydney program has not done this, and one of the changes resulting from the study will be the identification and cultivation of such skills. Student teachers will in future engage in reading key articles from the literature on reflection, together with studies into its facilitation, clarifying concepts which arise, and applying them in class and pair exercises. They will undertake mind mapping related to reflection, and be introduced to elements of a reflective writing genre. The groups undertaking microteaching (now part of the program in Year 2) will undertake more specific and regular reflection after this school-based activity, and also post-practicum, through group and written tasks based upon their attempts to teach, along with feedback provided by staff and peers. They will be encouraged to use data gathered about co-operating teachers' approaches to aspects of classroom management, as well as drawing upon their own practicum experiences and relevant literature.

The study has clearly identified further issues for research. At present, the authors are collecting audiotapes from the 1994 cohort of Year 4 students of their work in "critical friend" interview pairs, with a view to testing the hypothesis that verbal interactions encourage the development of reflective capacities, and provide clear evidence of reflection actually occurring because of the important "other" taking part. Investigating the development of reflective approaches across the professions is also currently being explored with other researchers from such fields as nurse education, social work, and youth work. In particular, that study as proposed would examine further developmental aspects of reflection across the professions, together with the longitudinal effects as students move into the first years of working in their chosen profession.

## Discussion and Conclusion

A most valuable critique of reflection in teacher education already referred to has been provided by Valli (1992). It offers a comparative study of seven U.S. programs which were consciously designed to develop reflective approaches in participants, together with commentaries from some recognised leading proponents of reflection. There is an explicit acknowledgement that Van Manen's three levels, technical, practical (sometimes labelled interpretive), and critical, are linked to the substantive goals or focus points towards which reflection is being directed. Since so many programs, though they have different conceptual and ideological bases, endorse the goal of encouraging reflective approaches, Feiman-Nemser (1990) argues now that reflection should be seen as generic professional disposition, a view congruent with that taken by Schön (1983, 1987), Tom (1985) or Eltis and Turney (1992). But whichever way reflection is seen, the problem remains of whether or not its development can be fostered in intending professionals through programs of preservice preparation.

The case studies considered by Valli attempted to address many of the issues already identified above, including definitions of goals directed towards critically reflective problem-solving and decision-making in classroom and school. The programs all concentrated upon aspects of professional preparation, acknowledging the difficulty of influencing other important parts of degree courses, especially discipline or content studies. In general, they involved a clear underlying rationale from their beginnings, with at-

tempts through time-consuming planning and review to carry staff with them in an all-embracing approach to teacher preparation. In a number of programs, major departures from the initial position were forced by either internal staff opposition or radical external intervention (at Houston, for instance, Perot's massive legislated changes to education in Texas). Nonetheless, the programs considered do meet Valli's claim (1992, p. xxv), "They represent current thinking in the field; programs which treat reflection as an important and complex construct."

Amongst the major features shared across at least a number of programs are the following principles. There are also characteristic of the Sydney course design for intending secondary teachers.

1. Concern with the development in student teachers of a personal style and philosophy of teaching, including ethical dimensions.
2. Use of action research or enquiry-based approaches to investigate and improve teaching in a supportive environment.
3. Recognition of the problematic nature of schooling, including classroom and curriculum decision-making.
4. Sensitivity to contexts for teaching, and in particular, to the range of school students' backgrounds, abilities, and characteristics.
5. Attempts to build in cycles involving preparation for practicum action, data collection about what happened, reflection upon it, and possible (often 'if–then') modification.
6. Ongoing monitoring of program implementation, with careful attempts to provide some evidence of their outcomes and impact.
7. Use of techniques such as microteaching to build a repertoire of skills, journalling to encourage recording, thinking, and self-evaluation, and regular dialogues with peers, staff, and/or teachers to clarify issues and value positions.

Sparks-Langer identifies three distinctive ways of looking at teaching and teacher education, each of which may be related to Van Manen's levels of reflection, or to the descriptive, dialogic, and critical types identified by the research in the present study. The *Cognitive Approach* utilises studies of teachers' information processing and decision making. The *Narrative Approach* has teachers telling their own stories through problem framing, naturalistic enquiry and case studies. The *Critical Approach* requires teachers to use ethical and moral reasoning, taking account to the social and political contexts (Valli, 1992, p. 147). She suggests these can become then alternative ways of examining and understanding professional work, approaches which intending teachers may use to tackle teaching where knowledge is so partial and fragmented. The Sydney program will continue to take a similar eclectic approach, which includes introducing students to research on teaching and classroom skills, to an understanding of teacher roles through enactment, and to teachers' planning processes, along with reviews of studies into reflection. The curriculum planning–implementation–evaluation task outlined seems an ideal way to have individuals reflect towards the end of their preservice program upon their own approaches to teaching, drawing upon critical perspectives they have gained throughout their course.

Valli (1992) tries to draw the threads together, addressing the issue of whether there are discreetly different models of reflection, or rather various levels, and chooses to side with Van Manen (1977). Her hierarchy proposes six levels, from the lowest, (1) behavioural, through (2) technical decision making, (3) reflection-in-action, (4) deliberative, (5) personalistic, to (6) critical. Based upon the literature reviewed, and the data so far collected, the writers hold that there are several fundamental flaws with this conception, Schön's reflection-in-action she puts at level 3. But from his own description, this would appear to be the most complex and demanding kind of reflection, calling for multiple types of reflection and perspectives to be applied during an unfolding professional situation. He recognised that such an approach to reflection develops only as a consequence of considerable experience (Schön, 1983). It seems to be substantially different in kind from the other forms of reflection, which all involve reflecting on action some time after a particular event. Evidence for its actually taking place would be hard to gather by traditional research means, but experienced professionals in medicine, social work, teaching, or nursing can recall and describe the reflective thought processes going through their heads while an event was occurring.

Further, the Sydney data indicate that at least in the preservice context, examples of critical

reflection were often brief and rather superficial, yet many instances of dialogic and descriptive reflection were complex, sustained, multi-dimensional, and insightful. In other words, we have evidence for distinct forms of reflection, different because of their defining characteristics, including goals and content, degrees of tentativeness, written versus verbal, and possibly genre. What may be hierarchical is a developmental sequence, starting the beginner with the relatively simplistic or partial technical type, then working through different forms of reflection-on-action to the desired end-point of a professional able to undertake reflection-in-action. The key notions are summarised in Figure 1.

The framework outlined recognises that an

| Reflection type | Nature of reflection | Possible content |
|---|---|---|
| **"Reflection-in-action"** (Schön, 1983, 1987) addressing IMPACT concerns after some experience in the profession | 5. **Contextualization of multiple viewpoints** drawing on any of the possibilities 1–4 below applied to situations as they are actually taking place | Dealing with on-the-spot professional problems as they arise (thinking can be recalled and then shared with others later) |
| **Reflection-on-action** (Schön, 1983; Smith & Lovat, 1990; Smith & Hatton, 1992, 1993) addressing TASK and IMPACT concerns in the later stages of a preservice program | 4. **Critical** (social reconstructionist), seeing as problematic, according to ethical criteria, the goals and practices of one's profession | Thinking about the effects upon others of one's actions, taking account of social, political and/or cultural forces (can be shared) |
| | 3. **Dialogic** (deliberative, cognitive, narrative) weighing competing claims and viewpoints, and then exploring alternative solutions | Hearing one's own voice (alone or with another) exploring alternative ways to solve problems in a professional situation |
| | 2. **Descriptive** (social efficiency, developmental, personalistic), seeking what is seen as 'best possible' practice | Analysing one's performance in the professional role (probably alone), giving reasons for actions taken |
| **Technical rationality** (Schön, 1983; Shulman, 1988; Van Mannen, 1977), addressing SELF and TASK concerns early in a program which prepares individuals for entry into a profession | 1. **Technical** (decision-making about immediate behaviours or skills), drawn from a given research/theory base, but always interpreted in light of personal worries and previous experience | Beginning to examine (usually with peers) one's use of essential skills or generic competencies as often applied in controlled, small scale settings |

Figure 1. Types of reflection related to concerns (Fuller, 1970; Smith & Hatton, 1993; Valli, 1992).

ideal end-point for fostering reflective approaches is the eventual development of a capacity to undertake **reflection-in-action**, which is conceived of as the most demanding type of reflecting upon one's own practice, calling for the ability to apply, singly or in combination, qualitatively distinctive kinds of reflection (namely technical, descriptive, dialogic, or critical) to a given situation as it is unfolding. In other words, the professional practitioner is able consciously to think about an action as it is taking place, making sense of what is happening and shaping successive practical steps using multiple viewpoints as appropriate.

It also acknowledges that common and legitimate starting points in many professional preservice programs are the basic skills which are seen as necessary for the neophyte to enter the actual professional practice context and survive, operating with some degree of safety and competence. These address the concerns students have about themselves and their ability to cope with the task (Fuller, 1970). Usually the generic competencies used early on in professional programs are drawn from a base of research and theory, are seen to be important by the profession, and are sought out by students anxious to make a successful beginning to their professional preparation, especially in field or practicum contexts. Often first professional practice experiences are undertaken in rather controlled or simulated situations, with immediate feedback focused on the **technical** skills.

It is widely acknowledged that from such a starting point which addresses the immediate and pressing concerns of students, it is possible to move on to create learning situations which foster the development of more demanding reflective approaches, taking account of the factors which impact upon the practical context, often using the technical competencies as a first framework for analysing performance in increasingly demanding situations. The intending professional gradually becomes more aware of the impact of his or her actions upon the client, in this case the students being taught. For **reflection-on-action**, three distinctive forms have been identified in this study, in large measure agreeing with similar categories outlined by others who have considered reflection, namely **descriptive, dialogic**, and **critical**.

They are placed in the above order to indicate a perceived developmental sequence (Kagan, 1992). In other words, students appear most readily to move on from technical to descriptive reflection, becoming more able to give a range of reasons for acting as they did. As they become increasingly aware of the problematic nature of professional action, they begin a rather exploratory and tentative examination of why things occur the way they do, here termed dialogic reflection. The use of critical perspectives depends on development of metacognitive skills alongside a grasp and acceptance of particular ideological frameworks, and in most studies of preservice students, is not a very common occurrence. But critical dimensions need to be fostered from the beginning, for teaching is a moral business concerned with means *and* ends.

This represents a starting position for conceptualising reflections and its development, from which the authors would like to argue that there are at least five distinctive forms of reflection which can be clearly identified. Each is useful, of value in its own right, and in fact **reflection-in-action** involves application of the others as appropriate to an unfolding situation. But they do appear to be developmental, in the sense that the **technical** form is a useful starting point addressing the concerns of students, who can then be encouraged to move on from that basis to understanding and using the other forms of **reflection-on-action**. The **descriptive** it would appear from this study is more easily mastered and utilised than either the exploratory **dialogic** or demanding **critical** forms, both of which require knowledge and experiential bases that take some time to develop.

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## Appendix

Criteria for the Recognition of Evidence for Different Types of Reflective Writing

*Descriptive Writing*

— *Not* reflective.
— Description of events that occurred/report of literature.
— No attempt to provide reasons/justification for events.

*Descriptive Reflection*

— Reflective, not only a description of events but some attempt to provide reason justification for events or actions but in a reportive or descriptive way. For example, "I chose this problem-solving activity because I believe that students should be active rather than passive learners."
— Recognition of *alternate* viewpoints in the research and literature which are reported. For example, Tyler (1949), because of the assumptions on which his approach rests suggests that the curriculum process should begin with objectives. Yinger (1979), on the other hand argues that the "task" is the starting point.
— Two forms:-
(a) Reflection based generally on one perspective/factor as rationale.
(b) Reflection is based on the recognition of multiple factors and perspectives.

*Dialogic Reflection*

— Demonstrates a "stepping back" from the events/actions leading to a different level of mulling about, discourse with self and exploring the experience, events, and actions using qualities of judgements and possible alternatives for explaining and hypothesising.

Such reflection is analytical or/and integrative of factors and perspectives and may recognise inconsistencies in attempting to provide rationales and critique, for example, "While I had planned to use mainly written text materials I became aware very quickly that a number of students did not respond to these. Thinking about this now there may have been several reasons for this. A number of students, while reasonably proficient in English, even though they had been NESB learners, may still have lacked some confidence in handling the level of language in the text. Alternatively, a number of students may have been visual and tactile learners. In any case I found that I had to employ more concrete activities in my teaching." Two forms, as in (a) and (b) above.

*Critical Reflection*

— Demonstrates an awareness that actions and events are not only located in, and explicable by, reference to multiple perspectives but are located in, and influenced by multiple historical, and socio-political contexts. For example, "What must be recognised, however, is that the issues of student management experienced with this class can only be understood within the wider structural locations of power relationships established between teachers and students in schools as social institution based upon the principle of control" (Smith, 1992).

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