



Is reflective writing an enigma? Can preparing evidence for an electronic portfolio develop skills for reflective practice?

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Documenting reflective practice would be easier if practitioners were in agreement about the meaning of reflection for practice. Even though evidence exists to support the links between reflection, professional learning and reflective practice, agreement about how to effectively facilitate the reflective process for deeper levels of reflection is not yet established. The reflective writing of postgraduate teacher education students was scaffolded using a Three-Step Reflective Framework. Written reflections were prepared for an electronic design portfolio and assessed by the subject lecturer. All participants demonstrated three levels of reflection in their writing, namely, Descriptive, Explanatory and Supported. There was a degree of critical reflection although this was not directly scaffolded by the framework. All participants found the Reflective Framework useful for assisting them to write reflectively, and the majority intended to carry on using it to assist in constructing a professional portfolio.

Keywords: reflection, professional learning, reflective practice, electronic portfolio, framework

Introduction

The meaning of reflection for practice is not easy to define and has long been debated by a number of scholars. The concept of reflection as a phased process of thinking was initially put forward by Dewey (1933), and later developed into three levels of reflectivity expressed as “ways of knowing with ways of being practical” (van Manen, 1977, p. 205). Generally, the process of reflection is claimed to occur over time so that practitioners can look back on their experiences in order to learn from them (Boud, Keogh & Walker, 1985; Boyd & Fayles, 1983), yet whether reflection occurs as a result of action, during action or for action is an area of disagreement precipitated by Schon (1983, 1987), and further discussed by Hatton and Smith (1995) in their work with teacher education students. This failure to find common ground has implications for practitioners who need to document their professional learning and demonstrate evidence of reflective practice. Even so, evidence demonstrates that clear links exist between reflection, professional learning and reflective practice (Boud et al.,

1985; Fook, White & Gardner, 2006; Loughran & Corrigan, 1995; Mansvelder-Longayroux et al., 2007; Moon, 2007; Nsiband, 2007; Valli, 1997). Current thinking confirms that the preparation of written evidence can develop reflective practice, particularly when it is destined for inclusion in a professional portfolio (Doig, Illsley, McLuckie & Parsons, 2006; Levin & Camp, 2002; Mansvelder-Longayroux et al., 2007). However, research investigating the importance of reflective writing for a professional ePortfolio is rare (Hegarty, 2011).

For this research, existing definitions of reflection were explored (specifically, Boud & Walker, 1990; Boud et al., 1985; Rodgers, 2002; Tremmel, 1993) and a definition developed to inform the reflective framework used in the study. Reflection was defined as: deliberate and mindful thinking about one's experiences and the self-evaluation of feelings, decisions, understandings and actions, which may lead to development of professional learning for professional practice. Reflection which demonstrates these attributes is regarded, in this research, as 'effective reflection' and is associated with reflective practice, thus establishing a connection between reflection, professional learning and reflective practice. Also, definitions for professional learning and reflective practice were developed based on others' work (specifically, Hatton & Smith, 1995; Kwakman, 2003; Parsons & Stephenson, 2005). Professional learning is defined as any learning which has relevance to professional practice and occurs when new knowledge and understanding, skills and insights are gained and may lead to the achievement of professional goals. Reflective practice is defined as a process associated with professional learning, which includes effective reflection and the development of metacognition, and leads to decisions for action, learning, achievement of goals and changes to immediate and future practice.

Theoretical Background

According to Boud and Walker (1990) "retrospective noticing", can initiate the reflective process, but requires attention to inner thoughts and feelings if ingrained assumptions and potential learning are to be unlocked and other perspectives considered (p. 71). Similarly, Robert Tremmel's work demonstrates the importance of encouraging teacher education students to pay attention, and through noticing their thoughts and feelings, they can be guided to 'see' the detail of a situation (1993). Rodgers' Reflective Cycle contains a similar message, for example: "Presence in experience: Learning to see" (2002), and she claims that noticing initiates the reflective process leading to meaning being uncovered and an appropriate response. Boud and colleagues (1985) in their model of reflection, describe the first two stages of noticing as "Returning to the experience", and "Attending to feelings", and believe that this engagement prompts practitioners to act and change practice (p. 26). A third stage, called: "Re-evaluating experience", is transformative because actions and thoughts emerge as a result of working with new forms of knowledge in light of existing knowledge (Boud et al., 1985). Likewise, 'Learning to take intelligent action' is described in Rodger's (2002) reflective cycle. These theories provided guidance for developing the definition of reflection for this study. In turn, the definition of reflection provided a foundation for the framework used to scaffold the reflective writing process. The framework incorporates three steps: noticing, analysing and taking action.

Scaffolding reflection is commonly regarded as essential to success (Donaghy & Morss, 2000; Sparks-Langer et al., 1990). For example, according to Bean and Stevens (2002), "scaffolding helps to focus students' reflections and provides explicit support in modeling the role of reflection" (p. 216). From Maarof's (2007) perspective "explicit training or development of skills to assist ... in reflecting upon their practice" is recommended (p. 215). Also, if practitioners are to extend their skills and examine their experiences using techniques beyond superficial description, support for reflective writing is regarded as essential (Hatton & Smith, 1995). In a study with 60 teacher education students, Hatton and Smith (1995) identified specific evidence of reflection in their writing about practice experiences, and this led to the development of a reflective framework for subsequent use, both for structuring reflective writing at a deeper level, and in the measurement of reflection for practice (see Table). Furthermore, five phases of cyclical reflection were used by Korthagen and Vasalos (2005) to assist student teachers to learn from their experiences, and they described this as the ALACT-model of reflection. (a) action, (b) looking back on the action, (c) awareness of essential aspects, (d) creating alternative methods of action, and (e) trial (Korthagen, 1985, p. 12). This cycle assisted the student teachers to develop their skills of

reflection bringing them to a stage where they demonstrated “core reflection” with more awareness of themselves as practitioners, and able to critically analyse problem situations (Korthagen & Vasalos, 2005, p. 55). The structured approaches used by Korthagen and Vasalos (2005) and Hatton and Smith (1995) are intended to enhance both reflection and learning for professional practice as teachers can be taught how to reflect in preparation for reflective practice. This was also the intent of using a framework in this research study.

Rationale and context

An intervention was needed in a post-graduate teacher education subject where the lecturer found it challenging to get students to reflect at a level necessary for meaningful learning. She was interested in finding a solution for students in her post-graduate teacher education classes who generally wrote little more than superficial accounts when asked to reflect about their experiences. The students were required to prepare reflections about the process of designing multimedia learning objects for inclusion in an electronic Design portfolio. The subject lecturer believed it was necessary that professionals developed skills for reflective practice, yet in previous classes unstructured processes for reflective writing had not been successful. Therefore, an investigation into the use of a reflective framework to scaffold reflective writing was needed for students. Given their educational and discipline specific context an electronic portfolio was used to document their work and provided the context for this research.

Framework and research questions

When choosing models on which to base the framework for this research, specific attributes were sought, and included “their propensity for guiding reflective processes such as noticing, describing the experience, interpreting or analysing the experience, examining other perspectives, and learning from the experience in order to act or make changes to practice” (Hegarty, 2011). Specifically, a guided sequence of reflection within a hierarchal framework was required, thus “starting the beginner with the relatively simplistic or partial technical type [of reflection], then working through different forms of reflection-on-action [including critical reflection] to the desired endpoint of a professional able to undertake reflection-in-action” (Hatton & Smith, 1995, p. 45). The intention was to support practitioners to develop skills for critical reflection as this was regarded by a number of researchers as a desired indicator of reflective practice (Fook & Gardner, 2007). Therefore, a framework using three steps was developed to guide the sequence in which the participants reflected on their experiences. Being sufficiently skilled to recall and record the event effectively is claimed to deepen the reflective process (Boud & Walker, 1990). Use of the framework by the participants was expected to assist this, and also contribute to the development of a professional portfolio which contained evidence of learning and reflective practice.

Portfolios

Portfolios are claimed to give teachers the opportunity to document their “experiences, thoughts, actions and ... learning...” (Kilbane & Milman, 2003, p. 565), and as such, assist teachers to reflect on their practice, and communicate their professional learning (Loughran & Corrigan, 1995). Although, reflection and professional learning are claimed manifest during portfolio development (Allan, Zylinski, Temple, Hislop & Gray, 2003; Doig, Illsley, McLuckie & Parsons, 2006; Falls, 2001; Wright, Stallworth & Ray, 2002), research is still unclear about how practitioners make connections between artefacts and evidence and reflect on them (McCoy, 2005). The reason that reflection is believed to be stimulated during the development of a portfolio is because experiences have to be analysed and interpreted in order to create the portfolio (Mansvelder-Longayroux et al., 2007, p. 49), and in this way practitioners are more likely to learn about themselves (Walker, 1985). In this research, the reflective content of written reflection assignments prepared for an ePortfolio and the way in which they used the reflective framework was of interest, not the process of developing the portfolio. The research question discussed in this article is: How do educational practitioners reflect when using a framework to write about their experiences?

Research Methodology

Case study, as a qualitative method using an intervention, was chosen to study how participants responded in a “real-life context”, and is an approach based on work by Yin (2003, p. 15). The intervention, the Three-Step Reflective Framework (see Figure 1), was developed for the research study, specifically to scaffold the reflective writing of seven postgraduate teacher education students who were studying in a multimedia design subject. The participants were asked to use the framework when preparing written reflections about their experiences designing multimedia learning objects, all of which were destined for inclusion in an electronic portfolio, and were assessed. Therefore, the case was bounded by the enrolment and assessment requirements of the subject. This research was undertaken as part of a larger study in which diverse data was collected (survey, participant interviews and subject lecturer interview, and written feedback). The detailed findings of the study are not described in this paper (detail about this can be found in Hegarty, 2011). The findings presented in this paper focus solely on the reflective writing produced by participants as a result of using the Reflective Framework.

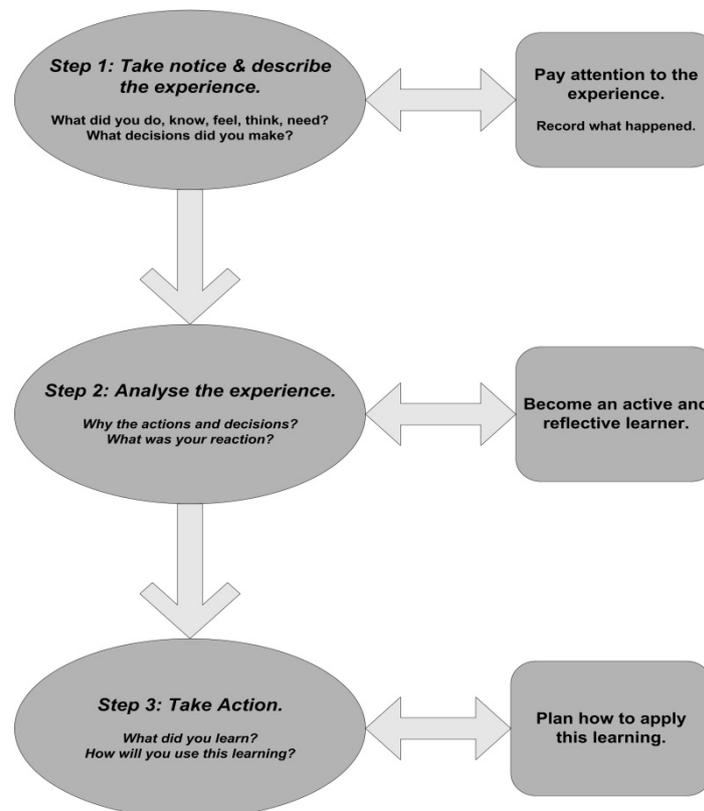


Figure 1: Three-Step Reflective Framework (Hegarty, 2011).

At each of the three steps of the framework, questions were used to guide participants to reflect, and some of these are shown in Figure 1. For example, at Step 1, participants were asked to notice their experiences and describe what happened. Additionally, further questions were used to prompt reflection at each of the three steps, and were available in the template used to structure participants’ reflective writing. Use of the framework was optional. Nevertheless, participants were encouraged to use it by the subject lecturer, and introduced to the framework during an on-campus workshop at the start of the subject which was when the research began. At this time, the researcher explained the steps and provided participants with an opportunity to use the framework during exercises in reflective writing.

The participants

The seven participants originated from a variety of educational areas and included teachers, instructional designers, an IT specialist and a staff developer. The commonality amongst the group was their interest in multimedia design for learning, and enrolment in a Masters of Education programme. Participants’ area of practice was multimedia design about which they wrote during this research. One participant had extensive previous experience in using reflective writing as part of her practice whereas the others were more familiar

with using reflection during verbal debrief sessions with colleagues or when thinking about their practice. Therefore, for the majority of participants, the preparation of written reflective pieces of work about practice was a new challenge.

The subject lecturer regarded reflection as an important skill which teacher education students needed to learn the professional practice. Therefore, the framework provided a practical solution to support this area of practice. There was an expectation that the framework would support participants to develop their skills of reflection which would manifest in how they reflected at each of the three steps, and also in what they focused on in their writing. For example, it was of interest whether they wrote about their feelings, learning, decisions, goals, professional skills, personal perceptions and others' views. Also, the framework was expected to guide participants to produce evidence of not only their reflective learning, but also their professional learning associated with practice experiences in the multimedia design subject. For the participants their experiences in the subject were not isolated from their professional practice as they were designing learning objects for practical use in their work. Therefore, explicit links to their professional work as well as their professional capability were expected.

Theoretical framework for analysis

To measure the levels and types of reflection in participants' writing a Levels of Reflection taxonomy was developed and used for analysis. This taxonomy is based on Hatton and Smith's (1995) four level framework, and the seven level Framework for Reflective Pedagogical Thinking developed by Sparks-Langer et al. (1990) (shown in Table 1).

Table 1: Comparison of two theoretical frameworks.

Framework for Reflective Pedagogical Thinking - Sparks-Langer et al. (1990, p. 27).	Criteria for the recognition of evidence for different types of reflective writing (Hatton & Smith, 1995, p. 48).
1 No descriptive language.	1. Descriptive writing - not reflective, description of events.
2 Simple lay person description.	2. Descriptive reflection- reflective description of an event and justification for actions.
3 Events labelled with appropriate terms.	3. Dialogic reflection - demonstrates a "stepping back" and "mulling over" of judgements and viewpoints.
4 Tradition or personal preference as rationale.	4. Critical reflection - demonstrates awareness about multiple historical and socio-political contexts.
5 Principle or theory explained.	
6 Context is considered plus principle or theory.	
7 Ethical, moral, political issues are included.	

An in-depth comparison of the theories underpinning the development of the Reflective Framework is available in Hegarty (2011, Appendix 10). As shown in Table 1, differences between the levels of the taxonomy and the underpinning theories exist at the first level of writing, where an account of events rather than reflection is expected. Conversely, in this research study, practitioners were expected to write reflectively at the first level by describing the feelings and emotions stimulated by their experiences, as this engagement is known to influence the quality of the reflection (Boud et al., 1985). To a lesser extent, work by McCollum (2002) and Rodgers (2002) also informed the taxonomy. By using the taxonomy, five levels of reflection were investigated in each of the participant's four written reflection assignments (28 in total). The levels were categorised as: Descriptive,

Explanatory, Supported, Contextual, and Critical, and are listed in brief in Table 2.

Table 2: Levels of Reflection taxonomy, a summary.

Categories and Sub-categories (in italics)	Description
1. Descriptive reflection - <i>Noticing, Deciding, Stating, Self-Questioning, Goals.</i>	Writing is superficial with descriptions about what has happened and the decisions made but not why.
2. Explanatory reflection – <i>Personal; Professional; Deciding; Self-Questioning; Reactions; Learning; Stating; Goals.</i>	Analysis of the experience from a personal or professional perspective about decisions, reactions, learning and goals.
3. Supported reflection – <i>Evidence Mentioned; Evidence Identified; Learning from Evidence; Reactions to Evidence.</i>	Evidence from the literature is mentioned in some way or referenced.
4. Contextual reflection – <i>Analysis; Cross-Linking; New Perspectives.</i>	Different perspectives are considered and compared to own views which may change.
5. Critical reflection – <i>Application of Learning.</i>	Multiple perspectives and consideration of wider professional issues, how learning will be used.

During the process of analysis, categories were modified where the characteristics of the content necessitated this. For example, the presence of questions in participants' writing led to a sub-category called *Self-Questioning* being added to the taxonomy at levels 1 and 2. This process of constant comparative analysis enabled an investigation of relationships between categories and the exploration of existing patterns leading to an understanding of the case (Maykut & Morehouse, 1994). Other coding systems were developed to extend interpretative analysis of the data. However, these and the other forms of data which were collected (survey, participant interviews and subject lecturer interview, and written feedback) and the detailed findings of the study are not described in this paper (detail about this can be found in Hegarty, 2011). The findings presented in this paper focus solely on the reflective writing produced by participants as a result of using the Reflective Framework. Changes in the levels of reflection in participants' writing as they wrote were anticipated as they wrote according to each step of the Reflective Framework. To ascertain the quality of reflection in participants' writing, the levels and type of reflection were investigated, and evidence sought of how the framework encouraged professional learning and reflective practice was sought.

Results and Discussion

The findings are reported using pseudonyms for the seven participants. Four out of five levels of reflection - Descriptive, Explanatory, Supported, and Critical – were found in the written reflections (see Figure 2). Contextual reflection, defined in this research as the fourth level of reflection, was not found. Descriptive and Explanatory levels of reflection were found most frequently, and the proportions, measured as percentage frequencies, varied between participants. All participants demonstrated the lower, three levels of reflection – Descriptive, Explanatory, and Supported.

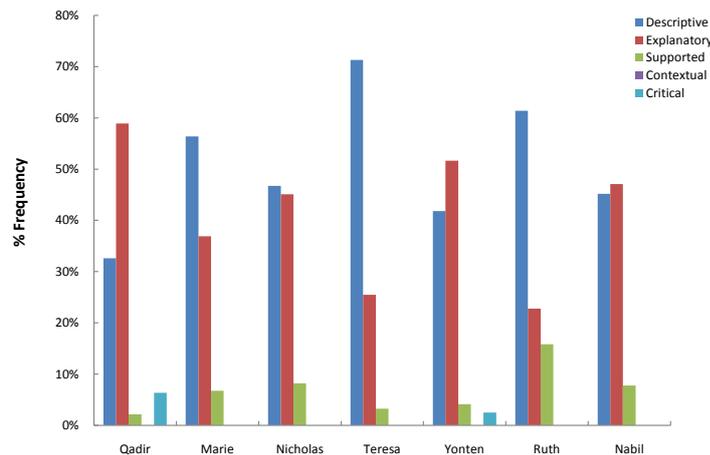


Figure 2: The distribution of five levels of reflection in written reflections (n=7).

This result was anticipated from the research on which the analysis of the levels of reflection was based (i.e., Hatton & Smith, 1995; McCollum, 2002; Rodgers, 2002; Sparks-Langer et al., 1990). Higher levels of reflection were either absent, in the case of Contextual reflection, or found at a low frequency, for example, Critical reflection.

Several different types of reflection were apparent at each level, each varying in frequency. For example, *Noticing* and *Stating* types of reflection were predominant at the Descriptive level of reflection (See Figure 3). *Noticing* was assigned to writing where participants “described their feelings and thoughts about their experiences, providing they did not analyse their experiences” (Hegarty, 2011, p. 156). *Stating*, in contrast,

was found when they described what occurred without providing rationale or emotional responses or references to a particular aspect of practice, for example their decisions and learning. Although, most participants commonly demonstrated *Stating*, not all participants demonstrated *Self-Questioning* which was generally found at a lower frequency than other types of reflection. Three participants (Marie, Teresa and Ruth) consistently used this technique in their writing, not only at the Descriptive level of reflection but also at the Explanatory level, and responded to their self-generated questions in their reflections.

The use of self-questioning is claimed to enable deeper reflection because practitioners who use this technique tend to demonstrate analysis of their experiences, and this may extend to critical reflection (Samuels & Betts, 2007). The participants who generated questions in their reflections during this study did not demonstrate critical reflection, but this may be due to the need to use questions which Fisher (2003) claims specifically prompt critical self-questioning about practice. She demonstrated improvement in the capacity of social sciences students to critically reflect by doing this. Self-questioning is also claimed to be a necessary skill for enhancing the practitioner’s ability to learn from experience, and enabling them to act leading to changes in practice (Boud & Walker, 1990). They regard self-questioning as an important part of a practitioner’s skill set. The use of questions by participants in their writing was anticipated, and possibly resulted from the guiding questions contained within the structure of the Reflective Framework.

For individuals, the frequency of each level of reflection was variable, and no consistent pattern was apparent across participants. Even though overall, participants wrote primarily at the Descriptive level of reflection (Figure 2), at an individual level, participants wrote, either equally at the Descriptive and Explanatory levels, or more so at another of the levels. For example, Yonten wrote more frequently at the Explanatory level than at the Descriptive level, but also demonstrated Supported and Critical levels of reflection (Figure 2). In contrast, Teresa exhibited mostly Descriptive reflection. The type of reflection exhibited by participants in their written reflections was varied as shown in Figure 3. For example, *Stating* and *Noticing* types of reflection, at the

Descriptive level, were most common. A further type of reflection, *Deciding*, was also found at a high frequency at the Descriptive level of reflection. This type of reflection was also common at the Explanatory level alongside *Stating*.

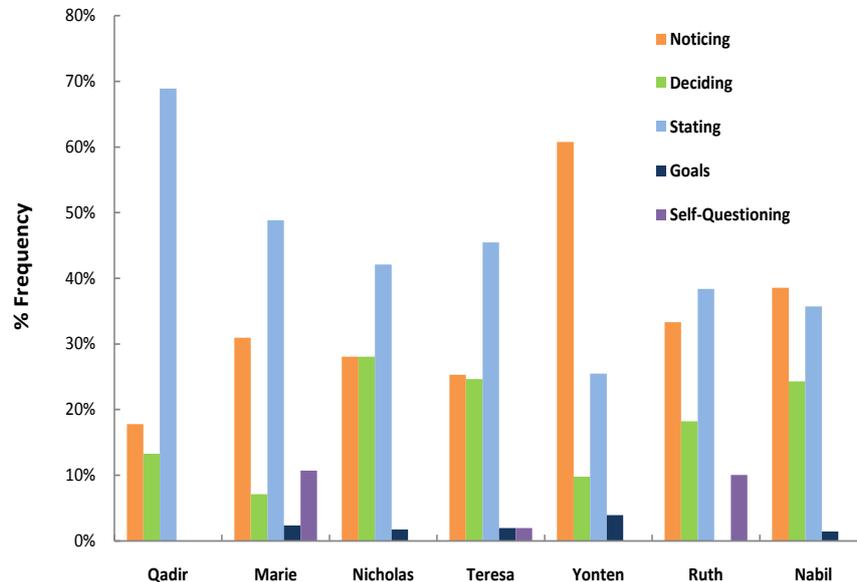


Figure 3: Frequency of Descriptive types of reflection for all participants (n=7).

Goals, although found less frequently than other types of reflection, were evident in all but one participant's writing. Setting goals was an indication that participants were monitoring their learning, and was cognisant with the use of metacognition, claimed to be associated with deeper levels of reflection (Fisher, 2003). *Evidence Identified*, at the Supported level of reflection, was also commonly found in participants' written reflections. This was an indication that they were citing others' work and writing about it in their reflections, although they were not critiquing and analysing multiple perspectives to the extent required for demonstrating Contextual and Critical levels of reflection. Illustrations of these aspects of the research can be seen in Hegarty (2011).

Levels of reflection at each step

The Reflective Framework appeared to encourage Descriptive reflection at Step 1 where it was found at a greater frequency than at the other two steps (see Figure 4). No other level of reflection was particularly evident at any of the three steps. Unexpectedly, Descriptive reflection, in comparison to Explanatory reflection, was also more frequent at Step 2. Links between the headings and prompts in the Reflective Framework and what participants wrote were apparent. For example, *Deciding* was found more frequently at Step 1 and at Step 2, compared to Step 3 where it was not prompted. Also, references to *Learning* were found most frequently at Step 3, and also at Step 2 where it was guided by the framework. Unusually, it was also found at Step 1 where it was not prompted. Critical reflection was found at a slightly higher frequency at Step 2 but was low at Step 3, even though participants were expected to critique their learning and actions with a view to acting on them at this step.

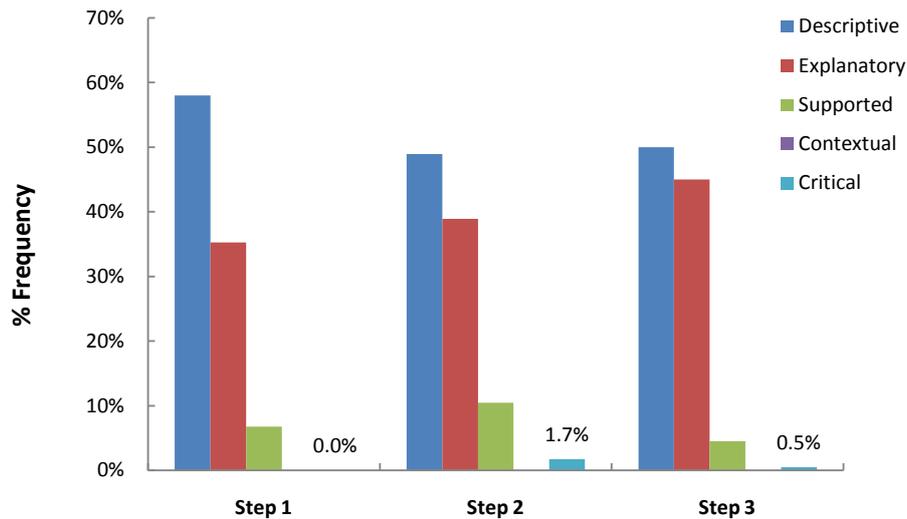


Figure 4: Levels of reflection at each step in the Reflective Framework (n=7).

Although, all participants used the framework to some degree in their written reflections, only two (Yonten and Nicholas) used it consistently for all four reflections. Evidence for this was provided by their use of the framework headings for each step. Although, use of the Reflective Framework varied, all participants found it helpful for guiding reflective writing, and the majority had plans to use the framework in the future to support reflective practice. Therefore, participants demonstrated levels of reflection beyond superficial description, and the framework was a useful tool for scaffolding reflective writing for professional learning and reflective practice.

When the content of the written reflections was analysed for evidence of professional learning and reflective practice, four themes became apparent: *professional capability*, *professional learning*, *professional practice*, and *professional context*. Five participants also demonstrated a connection between their reflections and learning in the multimedia design subject and their actions in practice which was indicative of professional learning and reflective practice. This evidence supported the types of reflection associated with learning and professional practice gleaned from analysis using the Levels of Reflection taxonomy.

Quality of reflection

The quality of reflection in participants' writing was not only indicated by the level and type of reflection but also the propensity of participants to use reflection for professional learning and reflective practice, and to generate questions during the reflective process. It was also apparent that participants considered others' perspectives in their writing as demonstrated by the degree of Supported reflection found. They also exhibited the expression of emotion and included their feelings when writing about experiences. This disposition is regarded as necessary if practitioners are to fully engage with their experiences (Boud et al., 1985)

However, participants did not critique multiple perspectives and compare them with their viewpoints and assumptions, a quality associated with both Contextual and Critical reflection in this study, and critical reflection in others' research (e.g., Fisher, 2003; Hatton & Smith; Ward & McCotter, 2004). For some researchers, reflective practice must include critical reflection as this is regarded necessary for transforming practice (Fook & Gardner, 2007; Minott, 2008). Even so, the capacity to monitor learning through setting goals

and reflecting on what was learned (metacognition) was demonstrated by participants in the study and is claimed to be a necessary attribute for supporting reflective practice (Livingston, 1997; McAlpine & Weston, 2000, Parsons & Stephenson, 2005). It appears that participants were engaging in reflective practice, along with self-questioning which has been found to encourage reflection on practice (e.g., Borrell-Carrió & Epstein, 2004; Lemon, 2007; Samuels & Betts, 2007). Evidence of metacognition and the ability to express emotions was also apparent. Such dispositions appear to be linked to effective reflection associated with reflective practice. Engagement in reflective writing using the Reflective Framework may have been influential in changing participants' attitudes to reflection as well as developing their capacity for reflective practice. However, any connection between previous experience with reflection and the quality of the participants' reflective writing was not apparent. However, a shift in attitudes about reflection was evident.

On entry to the research, participants' previous experiences with reflective writing for professional learning and practice differed as did their views about reflection. The majority found writing the first reflection assignment challenging, and believed this arose from a "lack of familiarity with reflective writing and use of reflection as a learning method" (Hegarty, 2011, p. 196)). For Marie, writing her thoughts was threatening, yet she responded positively to the guidelines provided by the framework in scaffolding her writing, and found the process easier with practice. For example:

Having to writing something down diary style was really confronting and I certainly didn't think I could do it and the guidelines ... were helpful and ... the reflections became more of a scaffolding ... for me (Marie, interview).

Yonten also found the Reflective framework helpful even though he initially found writing the reflections intimidating. Eventually, he shared the framework with colleagues in another subject because their unfamiliarity with reflection meant they were struggling to prepare written reflections. A contrasting view was expressed by Ruth who claimed that using the prompts in the framework took more time than her own previously established methods as she felt obliged to respond to each of the questions. Although, Ruth had previous experience in reflective writing most of her writing was at a descriptive level of reflection. Although, the majority of participants changed their opinions as a result of using the framework, and were able to see the value of reflection for learning and practice, Teresa's stance did not alter. For example:

I found it ... personally a bit of an awkward way to reflect I had to remember what I reflected on and put it in writing all the time, and I found it a more difficult way to reflect in a way, because I had to present things in such detail that [the lecturer] would understand" (Teresa, interview).

It is worth noting that Teresa had originally only used reflection as a way to 'think in her head' and this was the first time she had needed to reflect in writing. Five of the participants intended to continue to use the framework as a professional tool to support their reflective practice, and two of them intended to develop professional portfolios in the form of blogs. Following this research, the Three-Step Framework has been modified for use in guiding teaching staff to prepare blogs for reflective practice. As a result of the research, more emphasis has been placed on prompting the process of considering multiple perspectives and reflecting critically about incidents in practice. The impact of assessing the written reflections was not examined in this research. However, it is an important area as assessment is considered to be an inhibiting factor in the reflective process, particularly when used for reflective practice (Boud & Walker, 1998; Moon, 2004; Pedro, 2005; Stevens & Cooper, 2009).

Conclusion

Writing for reflective practice was scaffolded through the use of a Three-Step Reflective Framework developed for the study. The quality of reflective writing in this research was found to be linked to the levels and types of reflection. Three levels of reflection were commonly demonstrated in participants' reflective writing (Descriptive, Explanatory and Supported), yet critical reflection was rare. Participants commonly demonstrated a type of reflection defined as *Noticing* which indicated they were mindful of their experiences and able to write about their feelings, thoughts and knowledge, demonstrating they were engaging reflectively with their practice.

They also wrote frequently about their decisions and professional skills. The use of reflection for professional learning and self-questioning and references to learning and goals and other viewpoints were further indicators that participants were making use of a reflective process to make meaning of their practice experiences. Therefore, participants were able to develop skills for reflective practice through using the Three-Step Reflective framework. Also, particular dispositions emerged which were associated with engagement in reflective practice. The Reflective Framework was found useful in scaffolding reflective writing for an electronic design portfolio, and continues to be used in other capacities for supporting learning and reflective practice.

References

- Allan, G., Zylinski, J., Temple, V., Hislop, J., & Gray, K. (2003). The use of E-portfolios to enhance student learning: a Faculty-level strategy and experience. In G. Crisp, D. Thiele, I. Scholten, S. Barker, J. Baron (Eds.), *Interact, integrate impact: Proceedings of the 20th Annual Conference Australasian Society for Computers in Learning in Tertiary Education (Ascilite)*. Adelaide, Australia: Ascilite. Retrieved from <http://www.ascilite.org.au.ezproxy.uow.edu.au/conferences/adelaide03/>
- Bean, T., & Stevens, L. (2002). Scaffolding reflection for preservice and inservice teachers. *Reflective Practice*, 3(2), 205-218. doi:10.1080/14623940220142343
- Borrell-Carrió, F., & Epstein, R. (2004). Preventing errors in clinical practice: a call for self-awareness. *Annals of Family Medicine*, 2, 310-316. doi: 10.1370/afm.80.
- Boud, D., Keogh, R., & Walker, D. (1985). Promoting reflection in learning: a model. In D. Boud, R. Keogh, & D. Walker (Eds.), *Reflection: turning experience into learning* (pp. 18-40). London: Kogan Page.
- Boud, D., & Walker, D. (1990). Making the most of experience. *Studies in Continuing Education*, 12(2), 61-80. doi:10.1080/0158037900120201
- Boyd, E. M., & Fayles, A. W. (1983). Reflective learning: Key to learning from experience. *Journal of Humanistic Psychology*, 23(2), 99-17. doi:10.1177/0022167883232011
- Dewey, J. (1933). *How we think*. New York: D.C. Heath and Company.
- Doig, B., Illsley, B., McLuckie, J., & Parsons, R. (Eds.). (2006). *Using ePortfolios to enhance reflective learning and development*. Hershey, PA: Idea Group Reference.
- Donaghy, M., & Morss, K. (2000). Guided reflection: a framework to facilitate and assess reflective practice within the discipline of physiotherapy. *Physiotherapy Theory and Practice* 16(1), 3-14. Retrieved from <http://informahealthcare.com.ezproxy.uow.edu.au/doi/pdf/10.1080/095939800307566>

- Falls, J. (2001). *Using a reflective process to implement electronic portfolios*. Unpublished thesis. Blacksburg, Virginia: Virginia Polytechnic Institute and State University. Retrieved from <http://scholar.lib.vt.edu/theses/available/etd-12102001-125815/>
- Fisher, K. (2003). Demystifying critical reflection: defining criteria for assessment. *Higher Education Research & Development*, 22(3), 313-325. doi: 313-325. 10.1080/758482626
- Fook, J., White, S., & Gardner, F. (2006). Critical reflection: a review of contemporary literature and understandings. In S. White, J. Fook, & F. Gardner (Eds.), *Critical reflection in health and social care*. Maidenhead, Berkshire: Open University Press.
- Fook, J., & Gardner, F. (2007). *Practising critical reflection: a resource handbook*. New York: Open University Press.
- Hatton, N., & Smith, D. (1995). Reflection in teacher education: towards definition and implementation. *Teaching and Teacher Education*, 11(1), 33-49. doi:10.1016/0742-051X(94)00012-U
- Hegarty, B. (2011). A framework to guide professional learning and reflective practice. Unpublished thesis. University of Wollongong, NSW.
- Kilbane, C., & Milman, N. (2003). *The digital teaching portfolio handbook: a how-to guide for educators*. Boston: Allyn and Bacon.
- Korthagen, F. (1985). Reflective teaching and preservice teacher education in the Netherlands. *Journal of Teacher Education*, 36(1), 11-15.
- Korthagen, F., & Vasalos, A. (2005). Levels in reflection: core reflection as a means to enhance professional growth. *Teachers and Teaching*, 11(1), 47-71. doi: 10.1080/1354060042000337093
- Kwakman, K. (2003). Factors affecting teachers' participation in professional learning activities. *Teaching and Teacher Education*, 19, 149-170. doi:10.1016/S0742-051X(02)00101-4
- Lemon, N. (2007). Take a photograph: Teacher reflection through narrative. *Reflective Practice*, 8(2), 177-191. doi: 10.1080/14623940701288982
- Levin, B., & Camp, J. (2002). Reflection as the foundation for e-portfolios. In D. Willis et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2002* (pp. 572-576). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/10845>
- Livingston, J. (1997). Metacognition: An overview. Retrieved from <http://gse.buffalo.edu/fas/shuell/cep564/metacog.htm>
- Loughran, J., & Corrigan, D. (1995). Teaching portfolios: a strategy for developing learning and teaching in preservice education. *Teaching and Teacher Education*, 11(6), 565-577.
doi:10.1016/0742-051X(95)00012-9
- Maarof, N. (2007). Telling his or her story through reflective journals. *International Education Journal*, 8(1), 205-220. Retrieved from <http://iej.com.au>
- Mansvelder-Longayroux, D., Beijaard, D., & Verloop, N. (2007). The portfolio as a tool for stimulating reflection by student teachers. *Teaching and Teacher Education*, 23(1), 47-62.
doi:10.1016/j.tate.2006.04.033
- Maykut, P., & Morehouse, R. (1994). *Beginning qualitative research: a philosophic and practical guide*.

London: The Falmer Press.

- McAlpine, L., & Weston, C. (2000). Reflection: issues related to improving professors' teaching and students' learning. *Instructional Science*, 28(5), 331-536. doi:10.1023/A:1026583208230
- McCullum, S. (2002). The reflective framework for teaching in physical education: a pedagogical tool. *Journal of Physical Education, Recreation & Dance*, 73(6), 39-42. Retrieved from <http://find.galegroup.com.ezproxy.uow.edu.au/>
- McCoy, A. (2005). Faculty: the missing link in the e-portfolio process. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2005* (pp. 138-141). Chesapeake, VA: AACE. Retrieved from <http://www.editlib.org/p/18966>
- Minott, M. A. (2008). Valli's typology of reflection and the analysis of pre-service teachers' reflective journals. *Australian Journal of Teacher Education*, 33(5), 55-65. Retrieved from <http://ro.ecu.edu.au/ajte/vol33/iss5/4>
- Moon, J. (2004). *A handbook of reflective and experiential learning: theory and practice*. New York: RoutledgeFalmer.
- Moon, J. (2007). Getting the measure of reflection: considering matters of definition and depth. *Journal of Radiotherapy in Practice* 6(4), 191-200. doi: 10.1017/S1460396907006188
- Nsibandé, R. (2007). Using professional dialogue to facilitate meaningful reflection for higher education practitioners. In *Enhancing Higher Education, Theory and Scholarship. Proceedings of the 30th HERDSA Annual Conference* [CD-ROM]. Adelaide, Australia: HERDSA.
- Parsons, M., & Stephenson, M. (2005). Developing reflective practice in student teachers: collaboration and critical partnerships. *Teachers and Teaching*, 11(1), 95-116. doi: 10.1080/1354060042000337110
- Pedro, J. (2005). Reflection in teacher education: exploring pre-service teachers' meanings of reflective practice. *Reflective Practice*, 6(1), 49-66. doi: 10.1080/1462394042000326860
- Rodgers, C. (2002). Seeing student learning: teacher change and the role of reflection. *Harvard Educational Review*, 72(2), 230-253. Retrieved from <http://search.proquest.com.ezproxy.uow.edu.au/publication/41677>
- Samuels, M., & Betts, J. (2007). Crossing the threshold from description to deconstruction and reconstruction: using self-assessment to deepen reflection. *Reflective Practice*, 8(2), 269-283.
doi: 10.1080/14623940701289410
- Schön, D. (1983). *The reflective practitioner. how professionals think in action*. USA: Basic Books Inc.
- Schön, D. (1987). *Educating the reflective practitioner*. San Francisco: Jossey-Bass.
- Sparks-Langer, G. M., Simmons, J.M., Pasch, M., Colton, A., & Starko, A. (1990). Reflective pedagogical thinking: how can we promote it and measure it? *Journal of Teacher Education*, 41(5), 23-32.
doi: 10.1177/002248719004100504
- Stevens, D., & Cooper, J. (2009). *Journal keeping*. Sterling, Virginia: Stylus Publishing, LLC.
- Tremmel, R. (1993). Zen and the art of reflective practice in teacher education. *Harvard Educational Review*, 63(4), 434-458. Retrieved from

<http://search.proquest.com.ezproxy.uow.edu.au/docview/212270722?accountid=15112>Valli, 1997

- Valli, L. (1997). Listening to other voices: a description of teacher reflection in the United States. *Peabody Journal of Education*, 72(1), 67-88. doi:10.1207/s15327930pje7201_4
- van Manen, M. (1977). Linking ways of knowing with ways of being practical. *Curriculum Inquiry*, 6(3), 205-228. Retrieved from <http://www.jstor.org.ezproxy.uow.edu.au/>
- Walker, D. (1985). Writing and reflection. In D. Boud, R. Keogh, & D. Walker, (Eds.), *Reflection: turning experience into learning*. London: Kogan Page.
- Ward, J., & Cotter, S. (2004). Reflection as a visible outcome for preservice teachers. *Teaching and Teacher Education* 20(3), 243–257. doi:10.1016/j.tate.2004.02.004
- Wright, V., Stallworth, J. & Ray, B. (2002). Challenges of electronic portfolios: student perceptions and experiences. *Journal of Technology and Teacher Education*, 10(1), 49-61. Retrieved from <http://find.galegroup.com.ezproxy.uow.edu.au/>
- Yin, R. (2003). *Case study research design and methods* (3rd ed.). London: Sage Publications Ltd.

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