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A critical evaluation of the usefulness of a coding scheme to categorise levels of reflective thinking

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Abstract: The use of reflective learning journals to encourage higher order learning outcomes is a growing area in higher education research and practice. However, without a unified and clear definition of reflection, identifying and assessing reflection is problematic for educators. In an attempt to address this issue Kember *et al.* (1999) devised a coding scheme based on the work of Mezirow (1991), to identify and assess levels of reflective thinking in students' written journals. We evaluated the usefulness of this coding scheme in a business education context. Findings revealed that the scheme was useful in identifying categories of reflective thinking. Initial inter-coder agreement ranged from 50-79%. On average, 65% of the journal content was coded as non-reflection and 35% as reflection. A further outcome of the research was to refine the coding scheme and to provide suggestions for its application in teaching practice.

Keywords: reflective journals, reflective practice, business education

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Introduction

The ability to reflect on one's learning and to learn from reflecting on experience is a fundamental skill necessary for learning and decision making. Therefore, developing students' capacity to engage in reflective practices has been recognised as an essential goal for learning and transformation in higher education contexts and for preparing students effectively for their professional contexts (Boud, Keogh & Walker 1985; Kember et al. 1999; Rogers 2001; Thorpe 2004). Indeed, Rogers (2001, 55) claims that "...perhaps no other concept offers higher education as much potential for engendering lasting and effective changes in the lives of students". While it is widely acknowledged that reflective practices are beneficial, identifying and assessing reflection is problematic for educators (Hatton & Smith 1995, Wong et al. 1995; Kember et al 1999; Williams et al. 2000). In an attempt to address these issues, Kember, with a number of colleagues, embarked on a program of research to develop a coding scheme for identifying and assessing levels of reflective thinking (Kember et al 1999; Kember et al 2000; Kember et al 2008).

This paper aims to make two contributions to the higher education literature on reflective practices. The first is to investigate the usefulness of the Kember et al. (1999) coding scheme as a reliable method for identifying and assessing students' reflections in written journals. The second is to report on the use of reflective learning journals in a business education context to provide insights into what business students reflect upon and how students can be supported in their development of reflective skills.

Literature review

Learning journals in higher education

A learning journal is 'essentially a vehicle for reflection' (Moon 2006, 1) and is 'an accumulation of material that is mainly based on the writer's processes of reflection' (Moon, 2). Learning journals are used widely in higher education contexts because of their demonstrated effectiveness in supporting students' learning (Bain et al. 1999). Research studies exploring the use of learning journals suggest that they offer many benefits, including providing opportunities for students to explore their learning and experiences in greater depth, and to make explicit connections between theory and practice (Ballantyne & Packer 1995b; Henderson, Napan & Monteiro 2004, Loo & Thorpe 2002).

Learning journals have also been shown to assist students in exploring their values, beliefs and assumptions (Carson & Fisher, 2006), allow students to document, review and share their learning (Kember et al 1999), help students account for and realise learning in professional placements and fieldwork (Glaze, 2002; Kerka 2002; Moon 2006), support career management (Rigano & Edwards, 1998), stimulate critical thinking (Hettich, 1990) as well as break habitual ways of thinking, enhance the development of reflective judgment, develop problem solving skills, encourage deep, rather than surface learning and make connections between old and new knowledge (Kerka 2002; Moon 2006).

Given the many benefits of learning journals it is not surprising that they have been employed in a diverse array of disciplines to promote students' capacity for reflection, critical thinking and ultimately, their broader learning (Ballantyne & Packer 1995a, 1995b; Boud 2001; Henderson, Napan & Monteiro, 2004; Moon, 1999). Learning journals are used extensively in numerous fields including teacher education (e.g., Bain et al. 1999; Morrison 1996), social work (Rutter 2006), adult education or with higher degree students (e.g., Ballantyne & Packer 1995b; Boud 2001; Langer 2002; Morrison 1996) among others.

In our context, business disciplines, the use of learning journals is an emerging area of research. However, some academics have successfully incorporated learning journals into their curricula. Carson and Fisher (2006) found evidence of critical reflection in the reflexive reports of the majority of their senior undergraduate business students. The authors used an adapted version of Barnett's (1997) framework to summarise the changes in perspective that students identified in their reflexive reports, but it is not clear how the reports were assessed. An online reflective journal was used by Treleaven and Voola (2008) to support the development of the graduate attributes of marketing students. Treleaven and Voola provide the assessment criteria for the journals (e.g. 'Ability to question some of the traditional assumptions of marketing strategy' p171) but do not go into detail about particular categories of reflection. Harris (2008) used learning journals to encourage undergraduate management students to reflect on business ethics and describe a 3 step assessment process that draws on Hatton and Smith (1995). Ling (2005), using the Honey and Mumford Learning Styles Instrument, found that final year accounting students had a higher level of reflective observation after keeping a weekly, non-assessable learning journal. Third year financial accounting students completed a learning journal as part of a learning portfolio and categories of reflection were determined using Kember et al. (1999) (Samkin & Francis 2008). These studies invite academics to consider how they might support the reflective practice of business students and how reflection might be identified and assessed.

Identifying reflection in learning journals

Although learning journals support students' learning and can develop students' capacity for reflection, identifying reflection is problematic. Reflection, reflective thinking, reflective learning and critical reflection are not clearly defined, consensus about the terminology is lacking and the numerous definitions are problematic (e.g. Bain et al. 1999, Brown & McCartney 1998; Fisher 2003; Hatton & Smith 1995; LaBoskey 1993; Stefani, Clarke & Littlejohn 2000; Thorpe 2004). A review of the literature on reflection in higher education by Rogers (2001, 38), finds that: "(i)n addition to the confusion regarding terminology, there is a lack of clarity in the definition of reflection, its antecedent conditions, its processes and its identified outcomes".

Given this lack of clarity, it is hardly surprising that identifying and assessing reflective practices has continued to present problems for educators. Indeed, Thorpe (2004, 339) argues "...the lack of common definitions for the terms we use continues to complicate our ability to compare, and therefore, to gain from the research efforts within our discipline [nursing] and others".

Alongside the numerous definitions of reflection and the lack of consensus about the term is a paucity of empirical work on the assessment of reflection (Hatton & Smith 1995, Wong et al. 1995; Williams et al. 2000). With reference to social work education, Ixer (1999, 522) writes “we do not know enough about reflection or how its intricate and complex cognitive processes can enhance learning to be able to assess it fairly”. Despite some work that has explored the issues of measuring reflection and assessing student learning journals (e.g., Kember et al. 1999; Kember et al. 2000; Kember et al. 2008; Moon, 2006, Wallman 2008), a widely accepted method for identifying and assessing reflection does not exist (Boenink et al. 2004; Kember et al. 1999; Kember et al. 2000).

The coding scheme of Kember et al 1999

In an attempt to develop a reliable process for identifying and assessing reflection in learning journals, Kember et al. (1999, 18) suggest that “...to determine whether students are engaged in reflective practice it is necessary to have some means of identifying reflective thought and a measure of the depth of reflective thinking” and they proposed a coding system for doing so. Kember et al. (1999, 29) developed a number of criteria to evaluate the existing coding schemes employed to assess students’ reflective practice. However, they found that no current system met their criteria for assessing reflective practices.

Armed with a strong rationale, Kember et al. (1999, 29) developed a scheme for assessing reflective thinking. They tested the scheme using the reflective journals of undergraduate students studying nursing, occupational therapy, physiotherapy and radiotherapy.

Kember et al. claim that their scheme is applicable and transferable to a broad range of disciplines and contexts but note that

Wider acceptance of the scheme obviously depends upon more extensive testing, preferably in other contexts and by those not involved in its development. This would show how readily interpretable the category descriptors are and how easy it is to apply them in authentic contexts.

The original coding scheme of Kember et al. (1999) and our adapted version of their coding scheme are described in detail below in the method section. Since carrying out our research, Kember and colleagues have revised their coding scheme (2008) and a number of papers have employed this revised coding scheme. The implications of this recent work are considered in the discussion section of this paper.

Educational program and learning journal task

We used the coding scheme of Kember et al. (1999) to identify the categories of reflection in learning journals completed by seven undergraduate female students studying a range of majors in a business education context. These students were participants in a mentoring program called the Lucy Program. As part of the program students were required to prepare a learning journal to document and reflect upon their mentoring experiences and relationships with senior professionals in the corporate and public sectors.

Lucy Mentoring Program overview

The Lucy Mentoring Program was established in 2004 by the New South Wales Department for Women (now Office for Women's Policy) and Women Chiefs of Enterprises International with the participation of the of the Universities of Sydney and Western Sydney. This program supports female undergraduate students in the in the Faculty of Economics and Business who have experienced or may be experiencing personal circumstances which impede entry into networks leading to employment in the corporate sector. Impediments include: disrupted schooling/education, financial hardship, English language difficulties, and personal illness or disability. Students are selected through rigorous application and interview processes and paired with leading professionals in public and private sector organisations. The mentoring experienced through this program aims to inspire, motivate and educate young women about the opportunities available for employment and leadership positions in major corporations and in the public sector, thereby increasing the numbers of women at senior management level. Since its inception in 2004, 110 students have participated in the program.

Students meet with their mentors and undertake a work-based activity which provides them with valuable experiences and exposure to networks and business and government practices to assist them overcome the impediments they have experienced. The students spend a minimum of 35 hours in their mentor's workplace undertaking a range of activities such as researching and reporting on a discreet project, shadowing, networking, curriculum vitae preparation and attending meetings as well as induction programs and interview skills training. During this time the workplace the students also have the opportunity to discuss their career options with their mentors.

In addition to the practical work-based activity, participants are asked to keep a written record of their experiences in a reflective learning journal. The aim of this exercise is to support students in maximising their learning during their mentoring experience. Journal sections are submitted at set times throughout the mentoring experience and the reflections are focussed around key events and program components. The journal is required to be completed as part of the Lucy mentoring program, but is not assessed.

Reflective learning journal task

To facilitate and structure the writing of the reflective journal, students attended a seminar (one hour in duration) where the reflective journal writing task was explained and written guidance was provided (see Appendix 1) which included:

- *A rationale for completing a learning journal* which outlined the benefits of reflective practices in promoting critical thinking, challenging assumptions, increasing personal growth and enhancing and solidifying learning.
- *Key features of a reflective journal with examples*, specifically that the journal be more than a "log" or a "personal diary" and therefore would also show reflections, analyses and responses to their experiences.
- *An example of an annotated reflective learning journal entry* To assist the students' understanding of the elements and functions of a journal, an annotated sample entry was developed to demonstrate examples of the

different types of reflective practices that might arise as a result of experiences in this program.

Method

Coding scheme

Given the main aim of the paper is to evaluate the effectiveness of Kember and colleagues' (1999) coding scheme for identifying and assessing levels of reflection, we began by using the categories as given in their paper. These are summarised and explained below:

(1) Habitual Action (HA)

“Habitual action is that which has been learnt before and through frequent use becomes an activity which is performed automatically or with little conscious thought.” (Kember et al. 1999, 20).

(2) Introspection (I)

“...introspection lies in the affective domain. It refers to feelings or thoughts about ourselves... [or] feelings towards others. Introspection remains at the level of recognition or awareness of these feelings” (Kember et al. 1999, p. 21).

(3) Thoughtful Action (TA)

“Thoughtful action makes use of existing knowledge, without attempting to appraise that knowledge, so learning remains within pre-existing meaning schemes and perspectives. Thoughtful action can be described as a cognitive process... knowledge, comprehension, application, analysis and synthesis...” (Kember et al. 1999, 21).

(4) Content Reflection (CR)

Content reflection is concerned with *what*. “Reflection on what we perceive, think, feel or act upon” (Kember et al. 1999, 23, citing Mezirow 1991, 107).

(5) Process Reflection (PR)

Process reflection is concerned with *how*, that is our method or manner in which we think. “Examination of how one performs the functions of perceiving, thinking, feeling, or acting and an assessment of efficacy in performing them” (Kember et al. 1999, 23, citing Mezirow 1991, 107-8).

(6) Content and Process Reflection (CPR)

Mezirow's original coding scheme was augmented to include a combined category for Content and Process Reflection after Kember and colleagues' (1999) trials of the scheme found examples of reflections where content and process were inextricably linked.

(7) Premise Reflection (PREM)

Premise reflection is concerned with a significant change in perspective. It "...involves us becoming aware of why we perceive, think, feel or act as we do" (Kember et al. 1999, 23, citing Mezirow 1991, p. 108).

Further, Kember et al. (1999) represent visually the categories as *hierarchical levels* of reflective thinking, as reproduced below in Figure 1.

(Figure 1.)

Figure 1. The coding categories for reflective thinking.

Note: Reproduced from Kember et al. Figure 1 (page 25).

Kember et al. (1999, 24) argue that the "...level of reflective thinking increases from bottom to top." The first three coding categories (Habitual Action, Introspection, Thoughtful Action) are shaded to denote *non-reflective* actions based on the work of Mezirow (1991). Categories four to seven (Content Reflection, Process Reflection, Content and Process Reflection and Premise Reflection) represent levels of *reflective thinking* where categories four to six are on the *same level* and category 7 is considered a *higher level of reflection*.

Data suitability

After receiving university ethics committee approval for this study, we invited one cohort of Lucy program participants (semester 1, 2005) to participate in this study. Students were asked to submit their learning journals and were assured that their anonymity would be preserved in any research published based on the data. We selected the seven complete journals that were submitted. There were three coders: one was an academic who had input into the strategic management of the mentoring program, one was an academic with no involvement in the program and one was a non-academic staff member who was involved in the management of the program. We initially assessed data suitability by applying the Kember et al. (1999) coding scheme to the annotated sample provided to students as a guide for completing the task. This small test was successful, so we proceeded with coding all journals.

Coding process

Steps in preparation of the journals for coding:

Each journal was recorded and submitted in electronic format. First, a pseudonym was allocated to each journal so as to retain student anonymity. Second, line numbers were added for every line in the journal including sub-headings. This was necessary to enable comparisons of the coding results provided by each of the three coders.

Steps in standardising the coding process:

- 1) Each coder familiarised themselves with the Kember et al. (1999) coding scheme (Figure 1 above) and a one page summary coding scheme was produced and refined until agreed upon. The three independent coders evaluated each journal, coding on a line by line basis within meaningful 'text segments'. A text segment could have been a phrase, a sentence, a number of lines, a paragraph, that is, any section of text that expressed a single idea or consistent theme. Each line of text was allocated one or more codes depending on how many types of reflection were evident in the line. This line by line approach allowed us to measure inter-rater agreement.
- 2) The coders then independently coded one page of text.
- 3) The codes allocated by the three independent coders were compared. Where discrepancies were noted, these were discussed at length. After this process, we extracted explanatory text and examples from the journals for each of the coding categories and added them to the one page coding scheme. This resulted in an augmentation of the Kember et al. (1999) scheme which assisted in solidifying our shared understanding of each type of reflection.
- 4) Steps three and four were completed iteratively in two sessions of approximately two hours each, until we felt we had achieved consistency and a shared understanding.

Refinements of the coding scheme:

Our discussions resulted in the refinement of the coding scheme in the following ways:

a) We did not conceive of the categories of reflection as hierarchical levels, as we see the reflective process as holistic, with interdependent types of reflection.

b) Despite describing the category 'Habitual Action', Kember et al. (1999) assert habitual actions are not recorded in journals, or if they were they would cease to be so classified. We questioned the purpose of this category in that case. Further we found an example of a habitual action recorded in a learning journal: "I need to log on to Blackboard quite often". However, given this category is not key to the aims of this paper, we decided to not use this category as suggested by Kember et al. (1999).

c) Process reflection as defined by Kember et al. (1999) is concerned with the internal reflection on the student's own processes. The team noted by reading the journals that the students had in a number of instances discussed and reflected upon the processes of *others*. According to the scheme of Kember et al. (1999), this type of reflection would have been included in Content Reflection. We felt if we coded the data this way we would miss out on valuable information about processes. Reflecting on both the processes of others and students' own processes was particularly important in this learning context where the students were shadowing and learning from the processes and knowledge of experts. We did not want to mask the importance of others processes as part of content reflection, so therefore we decided to keep all Process Reflections in one category and distinguish between reflections on the processes of self and others. We divided Process Reflection into three categories. The first two categories were labelled Process Reflection – Internal (PRI) and Process Reflection – Others (PRO).

Where the student's reflection contained intertwined discussion of the processes of self and others we categorised this as PRO/PRI.

d) We noted that in both the Content and Process Reflection categories, Kember et al. (1999) referred to reflection on action. For consistency, reflection on action was retained in the Process Reflection category (ie concerned with *how*) and deleted from Content Reflection category (concerned with *what*).

e) In Figure 1, Kember et al. (1999, 25) showed graphically four levels of coding encompassing seven categories. In this figure, a new category, Content and Process Reflection, was added that was not part of the initial classification scheme and was not discussed at length in the article. We found evidence of the existence of this category in our data set and so added it as two discrete coding categories namely Content Reflection/Process Reflection – Internal (CR/PRI) and Content Reflection/Process Reflection – Others (CR/PRO). The two categories were required to distinguish between reflections about self and about others, as described in c) above.

f) Kember et al. (1999) state that Premise Reflection must include a significant change in perspective. We argued that the judgement about the level of significance of the change in perspective is arbitrary, so any reflection which indicated a change in perspective was coded as Premise Reflection (PREM).

To further explain and illuminate our coding, we provide examples of each category:

Introspection (I)

I was becoming very excited about what was to happen and what a challenge it would be. (Lily lines 37-38)

Here Lily is writing about her feelings about the program.

Thoughtful Action (TA)

My friend introduced me to a person who participated in the Lucy program last semester...she told me all about her experience and offered advice. She said it was the best experience ever, and she gained so much from the program. (Gaye Lines 16-19)

Gaye is reporting on making use of existing knowledge (the program information from her friend). Her writing is descriptive and does not contain any analysis at this point.

Content Reflection (CR)

Filling out the application form was a weird experience. To suddenly have my 'disadvantages' written in front of me, made me realise how much extra work I have to do to be successful. It made me think about my strengths and weaknesses as all other (job) applications do. (Tina lines 9-12)

Tina is reflecting on her actions (filling in the application form) and her thoughts about those actions.

Process Reflection – Internal (PRI)

I also think that I should start becoming more involved in the community and university events. I have always been part of the Debating Society, but I have always declined from the intra-state competitions because I thought it would take up too much of my time. I think I need to start competition debating again. It's going to be hard but I need to push up my marks whilst also developing myself personally and socially. (Sharon lines 210-215)

Sharon here is writing about her internal reflections on her own processes.

Process Reflection - Others (PRO)

Elizabeth also had two meetings with members of her staff. These were both women also. Observing these interactions seems she has a good relationship with her staff. (Geraldine Lines 255 – 256)

Geraldine is writing about her reflections on her mentor's processes.

Process Reflection – Others/Internal (PRO/PRI)

I found I had to spend some time in the days leading up to the meeting thinking about all the issues and questions we had discussed at the briefing. Perhaps if the two had been closer, these issues would have been fresher in my mind. (Amy lines 52-54)

Amy here is reflecting on her own processes and processes of others (the meeting organisers, holding the meetings far apart).

Content Reflection/Process Reflection – Internal (CR/PRI)

The greatest difficulty that I have had, in preparing answers for these questions is that I honestly don't know enough about what is involved in each division. I can research it on the company website and read the employee profiles provided, however I still feel this gives you a very limited experience of what actually goes on in a particular division. (Jemima lines 13-18)

Jemima is reflecting about both what (preparing answers) and how she perceived the task.

Content Reflection/Process Reflection – Others (CR/PRO)

We [the mentees] all seem very different and come from various backgrounds. I believe this will be a great place to make new friends and open my eyes to other opportunities because of this diversity. (Tina lines 37-39)

Tina is reflecting about both what (the other mentees) and how she perceives them.

Premise Reflection (PREM)

A corporate culture does exist where they banter and subtly mock each other. I think this would be a difficult environment for a woman to work in as I was told explicitly that the language and behaviour was toned down for me. I found this quite confronting and a bit of a shock as at university I always make an effort to contribute to group discussions, even if male dominated and never thought that I was being regarded as different, or that people acted differently because I am a woman. (Amy lines 184 – 189)

Here we see a change in Amy's perspective.

Measurement and inter-coder agreement

Each journal was coded independently by three coders in seven consecutive sessions of approximately two hours. Some journals took longer than 2 hours as they were either more detailed, longer or more complex to code. Some journals took less than 2 hours if they were short. Cronbach's alpha (Cronbach, 1951) was used to determine inter-rater reliability and was found to be 0.802. In general an alpha value of 0.70 or above is considered to be satisfactory (Bland & Altman 1997).

Results

The results reported in this section are based on percentage agreement greater than or equal to two for each of the coding categories for each of the study participants. Of the seven journals coded, two or more coders agreed that the non-reflective component of each journal ranged from 52% to 86% of the journal – in other words more than half of each journal was devoted to recording non-reflective experiences (Table 1). Conversely, two or more coders agreed that the reflective component of each journal ranged from 14% to 48% of the journal. The total number of written lines in each journal is provided. There is no clear relationship between number of lines and the proportion of the journal devoted to reflection. For example the journals of both Jemima and Tina were coded as 39% reflective even though Jemima (651 lines) wrote more than three times as many lines as Tina (207 lines). Further, Amy who wrote 234 lines, was coded as having a journal comprising of almost 50% reflection.

Table 1 shows that on average across all participants Thoughtful Action (TA) comprises the most lines in the learning journal and ranges from 49% to 73% of the journal. This category is followed by Content Reflection (CR) ranging from 12% to 32%. Introspection (I), Process Reflection – Others (PRO) and Process Reflection – Internal (PRI) have even smaller number of lines devoted to them ranging from 0% to 12%. The combination categories have very small proportions of the journals devoted to them, that is, 0% to 3% for Process Reflection – Others/Internal (PRO/PRI), Content Reflection/Process Reflection – Others (CR/PRO) and Content Reflection/Process Reflection – Internal (CR/PRI). The final category “Premise Reflection” (PREM) ranged from 0% to 6% of journal lines across all participants, with three journals recording over 4%. Figure 2 depicts the averages graphically.

Our new categories of Process Reflection – Others (PRO) and Process Reflection – Internal (PRI) were evident in most journals, ranging from 0 to 10%. Hence this is a helpful additional code when looking at types of reflections. However, the combination code Process Reflection – Others/Internal (PRO/PRI) appears to be much less used (0% to 1%) and perhaps does not enhance our understanding of students' different types of reflections. Similarly, the combination categories of Content Reflection/Process Reflection – Internal (CR/PRI) and Content Reflection/Process Reflection – Others (CR/PRO) when examined together represent 0% to 4% across the journals.

(Table 1.)

Table 1. Categories of reflection (where 2 or more coders agreed)

(Figure 2.)

Figure 2. Average amounts of types of reflection per journal

Discussion

Usefulness of the coding scheme

We found that the coding scheme of Kember et al (1999), with refinements, could be used to categorise types of writing in students' reflective journals. The addition of the categories Process Reflection – Internal and Process Reflection – Others was a valuable augmentation to the coding scheme. We found it useful to distinguish between the reflections on internal processes as opposed to the processes of others, given that the aim of the Lucy program was to develop students' skills through observation of and interaction with mentors. The distinction between reflection of the processes of others and one's own processes would be valuable in any learning context as students model their teachers' and peers' processes as part of their own learning.

One benefit of exposing students to a detailed coding scheme is that the categories draw attention to the various types of reflection. The journal sections identified as Process Reflection – Internal could be discussed with students and may be suggested as fruitful areas for students to explore further. Similarly, if we discuss with students the Process Reflection - Others category we can then encourage students to notice and reflect upon the processes of others. The journal sections identified as Process Reflection – Others are also helpful as an evaluation tool for teachers, and in the case of the Lucy program, the program designers and mentors.

A key aim of the reflective journal was to encourage students to reflect on their learning processes and to identify the processes they could undertake to extend their understanding where gaps were identified. One of the benefits of undertaking the coding is that it clearly demonstrates when the participants did not write about a particular type of reflection. For example, Lily did not write about her own processes or those of others. It could be beneficial for Lily to be alerted to this, as reflecting on the processes of self and others could be a powerful learning experience.

The coding scheme could be given as a guide for students when asked to write the journal, to provide a model from within which to work. The coding scheme could be also used by students for self or peer evaluation. Students could further engage with the reflective categories via in class activities such coding a (mock) journal and / or discussing categories identified in already coded journals. We acknowledge that full coding of reflective journals is probably not practical for large classes or long journals, as it is time consuming. Perhaps an extract could be coded.

Levels of reflection – our results compared to others

We found evidence of reflection in all journals and of premise reflection in all but two of the journals. This is in contrast to the work of other researchers using the coding scheme of Kember et al. (1999). It must be noted that these researchers used the scheme to assign a category to a whole piece of work, rather than apply the codes throughout each journal as we did. Samkin and Francis (2008) used the scheme to assess a sample of 20 learning journals of third year financial accounting students.

They rated nine journals at the level of introspection, three at the level of thoughtful action and eight as either content or process reflection or both. No evidence of premise reflection was found. A modified version of the coding was used to categorise the learning journals of 52 nursing students (Thorpe 2004). Thorpe found that most students could be categorised as reflectors (content, process and content and process reflection), a few as critical reflectors (premise reflection) and some as non-reflectors (habitual action, thoughtful action and introspection). The higher levels of premise reflection in our study could be due to our inclusion of *any* change in perspective as premise reflection, rather than ‘significant’ change (Kember et al 1999), which we felt was a subjective judgement.

The fact that a large percentage of each journal in our study was non-reflective (64.63% on average) is not surprising, both in terms of the other studies and in recognition that students are going to at times be ‘setting the scene’ and describing events, circumstances and experiences.

Assessing reflection?

Our work leads us to the debate as to whether it is appropriate to assess reflection at all (e.g. Ixer 1999). We did not use Kember and colleagues’ (1999) coding scheme to assess student journals, but rather to identify the levels of reflection for developmental purposes. The coding exercise confirms our judgement that it is not appropriate to use the scheme as a stand-alone mechanism for assessment. Kember and colleagues (2008) have since streamlined the scheme into four levels of reflection – non-reflection, understanding, reflection and critical, with transitional categories possible. They recommend assigning a single category to a piece of reflective work, with critical reflection the highest level. However, we question whether a densely reflective journal that focuses primarily on content reflection is of less quality than a journal that contains one premise (critical) reflection. Grading according to highest level of reflection doesn’t represent the broad spectrum of reflection that may be encompassed in the student’s writing.

We see the categorisation scheme of Kember and colleagues (1999) as an integrated whole, rather than as ‘levels’ of reflection. Kember et al. (2000, 39) show that the categories are indeed inter-correlated, but that finding doesn’t seem to have been carried across to the grading in Kember et al. (2008). Reflection isn’t only about transformation. Why should a student have to change as a person in order to get a high grade? A student could learn a great deal in a course but their perspective might already be aligned with what is being taught and their views might be validated rather than changed. We can’t force students to change their beliefs and assumptions. Nor can we expect students to do so when the experiences to which a student is exposed may not have supported such a change. Furthermore, a premise reflection may occur much later, after the journal has been written and submitted. Identifying what students have learned and the quality of that learning must link to the curriculum objectives. If used for assessment, then this framework needs to be aligned with the learning objectives of the course. The framework cannot be used as a ‘one-size fits all’ model, and indeed Kember et al. (2008, 376) suggest using additional “discipline- or assignment-specific criteria”.

There are other ethical questions about assessing reflection. Will students reflect genuinely, honestly and deeply, if they know their reflection will be assessed? Students interviewed by Stewart and Richardson (2000, 373) felt that having to write about their experiences “diminished what they had actually gone through in terms of personal learning and suggested the assignment introduced an element of artificiality into their ability to reflect”. Students also had concerns about how such personal writing could be marked with any reliability. Macfarlane and Gourlay (2009) argue that “...reflection...can be just as prone to inauthentic writing as the plagiarised essay.” (457) and that “[i]t promotes conformism to a narrow set of values which are left unexamined and can also impact negatively on students from certain disciplines (and cultures) schooled to write in a more formal and technical manner.” (458).

Benefits of reflection in business education

Our study adds to the small but growing area of research into the use of reflective activities by business students. Despite the ‘dark side’ of reflection discussed above, we believe that, when properly supported, reflection is a useful learning activity for students and also for teachers. Students in the Lucy program have made comments such as “The learning journal... will be useful in the future as a reminder of what has been achieved” and “The learning journal is often difficult at the time but I think it will be useful in the future”. Business students may find reflective activities unfamiliar and challenging but also, for many students, illuminating (e.g. Day, Kaidonis & Perrin 2003; Carson & Fisher 2006; Ling 2005; Lucas 2008). The Lucy mentoring program provided students with a context that was particularly well suited for reflection, and this aspect of the program was augmented by requiring students to complete the reflective learning journal exercise.

Conclusions

Our research shows that the coding scheme of Kember et al. (1999) is useful when identifying categories of reflection in students’ journals. We recognise that we worked with a small sample size and that it may not be practical to do such detailed coding with a larger cohort of students. We do not recommend using the scheme to assess reflective journals. Further research is needed into how to assess reflective journals: the use of the Biggs and Collis SOLO taxonomy (1982) may be of assistance. Our research, like that of others, finds the assessment of learning journals complex and in need of further inquiry. However, we recommend the use of the Kember et al. (1999) coding scheme for developing students’ reflective skills and identifying different types of reflection.

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References

- Bain, J.D., R. Ballantyne, J. Packer, and C. Mills. 1999. Using journal writing to enhance student teachers' reflectivity during field experience placements *Teachers and teaching* 5 (1): 51-73.
- Ballantyne, R., and J. Packer. 1995(a) The role of student journals in facilitating reflection at the doctoral level. *Studies in Continuing Education* 17 (1-2): 29-45.
- Ballantyne, R., and J. Packer. 1995(b). *Making connections: Using student journals as a teaching/learning aid HERDSA Gold Guide No. 2*. Canberra: HERDSA.
- Barnett, R. 1997. *Higher education: A critical business*. Buckingham, UK: The Society for Research into Higher Education and Open University Press.
- Biggs, J.B., and K.F. Collis. 1982. *Evaluating the quality of learning – the SOLO taxonomy*. New York: Academic Press.
- Bland J.M., and Altman D.G. 1997. Statistics notes: Cronbach's alpha. *British Medical Journal* 314:572.
- Boenink, A.D., A.K. Oderwald, P. de Jonge, W. van Tilburg, and J.A. Smal. 2004. Assessing student reflection in medical practice. The development of an observer-rated instrument: reliability, validity and initial experiences. *Medical Education* 38 (4): 368-377.
- Boud, D. 2001. Using journal writing to enhance reflective practice. *New Directions for Adult and Continuing Education* 2001 (90): 9 – 18.
- Boud, D., R. Keogh, and D. Walker. 1985. *Reflection: Turning experience into learning*. London: Kogan Page.
- Brown, R.B., and S. McCartney. 1998. Using reflections in postgraduate accounting education. *Accounting Education* 7 (2): 123-137.
- Carson, L., and K Fisher. 2006 Raising the bar on criticality: Students' critical reflection in an internship program. *Journal of Management Education* 30 (5): 700-723
- Cronbach, L. J. 1951. Coefficient alpha and the internal structure of tests. *Psychometrika* 16(3): 297-334.
- Day, M.M., M.A. Kaidonis, and R.W. Perrin. 2003. Reflexivity in learning critical accounting: implications for teaching and its research nexus *Critical Perspectives on Accounting* 14 (5): 597-614.
- Dewey, J. 1993. *How we think: A restatement of the relation of reflective thinking to the educative process*. Boston: D. C. Heath.

- Fisher, K. 2003. Demystifying critical reflections: defining criteria for assessment. *Higher Education Research & Development* 22 (3): 313-325.
- Harris, H. 2008. Promoting ethical reflection in the teaching of business ethics. *Business ethics: A European review* 17 (4): 379-390.
- Hatton, N., and D. Smith. 1995. Reflection in teacher education: Towards definition and implementation. *Teaching and Teacher Education* 11 (1): 33-49.
- Henderson, K., Napan K., and S. Monteiro. 2004. Encouraging reflective learning: An online challenge. Paper read at Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference 5-8 December, at Perth.
- Ixer, G. 1999. There's no such thing as reflection. *British Journal of Social Work* 29 (4): 513-527.
- Kember, D., A. Jones, A. Loke, J. McKay, K. Sinclair, H. Tse, C. Webb, F. Wong, M. Wong, and E. Yeung. 1999. Determining the level of reflective thinking from students' written journals using a coding scheme based on the work of Mezirow. *International Journal of Lifelong Education* 18 (1): 18-30.
- Kember, D., D.Y.P. Leung, A. Jones, A.Y. Loke, J. McKay, K. Sinclair, H. Tse, C. Webb, F.K.Y. Wong, M. Wong, and E. Yeung. 2000. Development of a questionnaire to measure the level of reflective thinking. *Assessment & Evaluation in Higher Education* 25 (4): 381-395.
- Kember, D., J. McKay, K Sinclair, and FKY Wong. 2008. A four-category scheme for coding and assessing the level of reflection in written work. *Assessment & Evaluation in Higher Education* 33 (4): 369-379.
- Langer, A.M. 2002. Reflecting on Practice: using learning journals in higher and continuing education. *Teaching in Higher Education* 7 (3): 337-351.
- LaBoskey, VK. 1993. A conceptual framework for reflection in preservice teacher education. In *Conceptualizing reflection in teacher development*, edited by J. Calderhead and P. Gates. Bristol, PA: Falmer Press.
- Ling, H.P. 2005. Reflective learning through learning journals: Can business students do it? Paper read at 28th Annual HERDSA conference: Higher education in a changing world, 3-6 July, at Sydney.
- Loo, R, and K. Thorpe. 2002. Using reflective learning journals to improve individual and team performance. *Team Performance Management* 8 (5/6): 134-139.
- Lucas, U. 2008. Being "pulled up short": Creating moments of surprise and possibility in accounting education. *Critical Perspectives on Accounting* 19 (3): 383-403.
- Macfarlane, B., and L. Gourlay. 2009. The reflection game: Enacting the penitent self. *Teaching in Higher Education* 14 (4): 455-459.

- Mezirow, J. 1991. *Transformative dimensions of adult learning*. San Francisco: Jossey-Bass.
- Moon, J. 1999. *Learning journals: A handbook for academics, students and professional development*. London: Kogan Page.
- Moon, J. 2006. *Learning journals: A handbook for reflective practice and professional development*. 2nd ed. London and New York: Routledge.
- Morrison, K. 1996. Developing reflective practice in higher degree students through a learning journal. *Studies in Higher Education* 21 (3): 317-332.
- Rogers, R.R. 2001. Reflection in higher education: A conceptual analysis. *Innovative Higher Education* 26 (1): 37-57.
- Rutter, L. 2006. Supporting reflective, practice-based learning and assessment for post-qualifying social work. *Reflective Practice* 7 (4): 469-482.
- Samkin, G., and G. Francis. 2008. Introducing a learning portfolio in an undergraduate financial accounting course. *Accounting Education* 17 (3): 233-271.
- Stefani, L.A.J., J. Clarke, and AH. Littlejohn. 2000. Developing a student-centered approach to reflective learning. *Innovations in Education and Training International* 37 (2): 163-71.
- Stewart, S., and B. Richardson. 2000. Reflection and its place in the curriculum on an undergraduate course: Should it be assessed? *Assessment & Evaluation in Higher Education* 25 (4): 369-380.
- Sumison, J., and A. Fleet. 1996. Reflection: Can we assess it? Should we assess it? *Assessment and Evaluation in Higher Education* 21 (2): 121-30.
- Thorpe, K. 2004. Reflective learning journals: from concept to practice. *Reflective Practice* 5 (3): 328-343.
- Treleaven, L., and R. Voola. 2008. Integrating the development of graduate attributes through constructive alignment. *Journal of Marketing Education* 30 (2): 160-173.
- Wallman, A., A.K. Lindblad, S. Hall, A. Lundmark, and L. Ring. 2008. A categorization scheme for assessing pharmacy students' levels of reflection during internships. *American Journal of Pharmaceutical Education* 72 (1): 1-10.
- Williams, R., G. Sundelin, E. Foster-Seargeant, and G.R. Norman. 2000. Assessing the reliability of grading reflective journal writing. *Journal of Physical Therapy Education* 14: 23-26.

Wong, F.K.Y., D. Kember, L.Y.F. Chung, and L. Yan. 1995. Assessing the level of reflection from reflective journals. *Journal of Advanced Nursing* 22 (1): 48-57.

Appendix 1. Reflective learning journal - Instructions and template provided to students

REFLECTIVE LEARNING JOURNAL For the Lucy Mentoring Program (Jblank)

Introduction

One of the fundamental aims of a university education is the development of graduate attributes such as critical thinking skills and self reflection. As an integral part of the Lucy Program you will complete a Reflective Learning Journal. This will assist you in 'getting the most out of' this experience. Keeping a reflective learning journal is an active learning process which will support your development of many of the key generic graduate attributes as outlined in the Faculty of Economics and Business Statement of Graduate Attributes (see attached).

Dewey (1933) sums up the benefits of reflection when he describes reflective individuals as open-minded, responsible for their own views and willing to face fears and uncertainties with enthusiasm.

What is a reflective learning journal?

As well as being a record of your experiences during the program, the journal should also show your reflections, analysis and responses to these experiences.

It is more than a "log" or a "personal diary"

Example of a log/personal diary: *April 7th. I attended the Lucy Launch from 12.15 – 2 pm. Today at the Lucy Launch I met my mentor – she was so friendly. I had a good time and had a great lunch.*

Key features of a reflective learning journal

- Description of the Lucy related event (event = moment, time, activity, thought, feeling)
- Personal experience of the event (describe, evaluate and reflect on your feelings and how you viewed yourself and/or your participation in the event, note any ideas and inspirations)
- What did I learn and how can I apply knowledge/skills (describe and evaluate how this connects or extends your existing knowledge and how it relates to your university studies)
- Did I begin with certain assumptions and are/were they challenged? (explain how and why)
- How has this event changed me as a person and/or my thinking?
- How can I improve/develop from this experience? (describe the strategies you will put in place to achieve this development)
- Includes discussions about personal experiences, career/professional development and the development of other graduate attributes.
- Please use the Faculty's Statement of Graduate attributes (attached) as a framework for coding entries in your journal. **Please note** that these should be identified in each entry using this **key**: **P&IA** Personal and Intellectual Autonomy; **R&I** Research and Inquiry; **ES&PU** Ethical, Social and Professional Understanding; **C** Communication and **IL** Information Literacy). These are expanded on in the Faculty's Statement of Graduate attributes (attached).

Comments on the annotated reflective learning journal

- A learning journal is very personal, so there is no right or wrong way to experience and reflect – an example is provided below. Your journal should be a very honest and personally developing activity.
- Your journal will consist of columns one and two only in the example below. The annotation provided in the right hand column is to assist you in understanding some of the elements and functions of a journal.
- When you write your journal, you may classify and/or interpret events or experiences differently to others or to the interpretations in the example – it is a personal reflection.

- The example below does not contain as much ‘substantive’ material as your work based reflections will.

Sample entries in a reflective learning journal with annotations

Event: *April 7th Lucy Launch 12.15 – 2 pm at Governor Macquarie Tower, Sydney*

(Table 2. [2-1 & 2-2])

Table 2.

Activity

Think about the key events (for you) so far in this program and note them briefly. Select one of these events and prepare a journal entry with key – use template below.

Event:

(Table 3.)

Table 3.