Reflection-in-Addition: Using Reflective logs to Build Research into Undergraduate Projects

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Abstract: This paper explores the scope for using reflective logs as a component in final year projects taken by students on an undergraduate management course. Students often wish to build practical experience into the final year of their degree, but they are also expected to carry out a certain amount of independent research as part of a final year. There can be a tension between students' desire for experience and the requirement for research. The context of this is a management degree where a significant piece of independent work is regarded as a crucial component of the course, but where an unintended consequence of framing this piece of work in a way that encourages autonomy among students, is that there is some ambiguity about quite what students are expected to deliver. An observation made by some of the markers of these projects is that it is not uncommon for them to read like good consultancy reports, which do demonstrate the students' writing skills and often prepare them for their future careers, but which do not necessarily score highly against the criteria associated with a major academic piece of work. Within the author's institution some thought has been given to providing alternative forms of project, and a tangible move in this direction has been to introduce an option where some students combine their project with working alongside an organisation on a practical task. For these students an integral part of the process is the requirement that they maintain a reflective log on their work, following the principles of Schon (1983) in framing and reframing questions to elicit knowledge based on the students' experience. One interpretation of this is that the reflective log can constitute part of the primary data that the students draw on in their research. Such an approach has clear attractions for students and academic supervisors alike. There are well defined formats which a reflective log can follow and which can foster experiential learning (Moon, 2004). Because this type of project is based on practical activities in conjunction with employers, its relevance to students' future aspirations is clear, and because it depends on students carrying out some analysis of their experiences, it offers students some training in using observation and reflection as approaches to research. As discussed by Yanow and Tsoukas (2009) reflection provides a range of different ways to understand the nuances within an activity. Therefore some consideration is being given to the wider use of reflective logs as a component within undergraduate student projects, particularly if these can be framed as part of a process within which the students learn to carry out individual research.

Keywords: Reflective practice, projects, observation

1. Introduction

Reflective practice is central to higher education. Educators are encouraged to reflect on their own activities and to foster a reflective mindset among students. Reflection is one of the key tools used by students to internalise knowledge and understanding. Even where reflection is not explicitly acknowledged as a tool, it facilitates a level of engagement with material and concepts – for example in achieving deep learning (Ramsden 2003) which depends on students organising their knowledge and constructing a set of connections between different concepts.

This paper is based around one particular application of reflective practice within higher education: the use of a reflective log to enhance learning among students working on individual projects within an undergraduate management degree. It draws on experience of a group of students using reflective logs in a particular and closely-defined context and raises the issue of whether such logs could be more widely used.

Within the author's institution, the initial context for this approach was where undergraduate students on a degree in management, given the requirement to carry out an individual project including an element of independent research as part of an honours degree, chose an option based around working within a corporate responsibility team in an organisation. Historically the institution had followed a loose definition of what constituted independent research, at least at the

undergraduate level, and students were encouraged to choose from a range of broad subjects but then to pursue these however they thought appropriate.

The corporate responsibility option, offered as an alternative approach for the individual project, depended on students studying the corporate responsibility team within which they were working, and at the same time reporting and reflecting on their experience. Students would work within the corporate responsibility team on a particular issue facing the organisation.

The focus is on the potential for a reflective log to be central to the creation of this novel type of student project, within which the experience recorded in the log becomes the primary data used by students as researchers. In addition to locating the experience in the context of theories of reflection and pedagogy, this paper considers the scope for broader adoption of this approach. Its aim, therefore, is both to review the practical experience, with some thought given to future implementations of the same approach, and to explore how much further the approach could be adopted.

The paper continues with some thoughts on reflection and discusses some of the influential literature around the area. It continues with a more detailed account of the students' experience of the project approach using reflective logs. There are then some discussions of the benefits and limitations of the approach, with a conclusion considering lessons learned and the scope for further application of reflective logs.

2. Reflection and learning

This section sets out the background to reflection and also explains why it is relevant to the current environment. This is followed by some further discussion of reflective practice and its role in higher education, both at a theoretical and practical level. Finally reflection in higher education is linked to considerations on observation as a research method and on action research.

Schön (1983) identified 'reflection-in-action' as an approach with the potential to identify knowledge, and build new knowledge, based on an individual's practice. To achieve this, an individual needs to reflect actively while engaging in practice, and to use tools such as metaphor, observation, and questioning to explore their practice.

Smith (2011) firmly locates Schön's philosophy as a reaction to the 'stable state': in other words, reflection-in-action is most valuable as a tool to facilitate learning in unpredictable and complex environments. In the context of the needs of anybody entering employment in the 21st century, this translates into an approach which allows them to practise dealing with a set of uncertain and changeable challenges. For university students, particularly those in their final year who should be prepared to enter the workforce in a period of rapid change in the environment within which employers operate, this is a valuable skill. Scharmer's (2009) conception of 'theory U' deals with the challenges associated with changes in the broader environment in the future. Reflection is at the heart of this: it provides a way to achieve the aim of 'presencing' – of sensing what is taking place at the moment but using this to develop a vision of what is possible in the future.

Reflective practice is related to double-loop learning (Argyris, 1991) which requires learners to explore both the immediate problems and challenges associated with a situation, and also the underlying causes. Argyris links the need for double-loop learning to the tendency for learners to overlook underlying causes of a problem because of a set of prior assumptions. While the principle of double-loop learning is long-established, it is particularly relevant to a turbulent and uncertain world where the assumptions behind the underlying causes of a situation are constantly shifting. In the broader context of organisations – not just in higher education but in the environments where students will go on to work – double-loop learning forms the theoretical basis for the emergence of learning organisations.

Kane et al (2004) set out to explore the characteristics of effective teaching in higher education: they identify reflection as a common strand among teachers' development of their practice and also stress that reflection can take various forms. Reflection here is seen as the key to elevating the level of understanding of a subject from the purely descriptive to the scholarly and analytical. Hibbert and Cunliffe (2013) argue for the need for students to engage in reflective practice, along with the recognition of a set of threshold concepts (Land, 2011), but in a different context around responsible management. There are echoes of Schön's arguments about moving beyond the stable state in their discussion of the need to respond to a climate of uncertainty and to the emergence of a series of ethical challenges. Reflective practice offers a way to rationalise and recognise nuanced factors within an issue (Yanow and Tsoukas, 2009) and as such can be valuable in dealing with complexity.

Bleakley (1999) argues for Schön's notions of reflective practice to form the basis for a more complex and considered approach to reflexivity within higher education. While the implications of the term 'reflexivity' are complex, and are discussed at length by Bleakely, it can be understood as something further than pure reflection. Hibbert (2009) links reflexivity and threshold concepts: in the context of management education, reflexivity is a threshold concept in that it takes learners into the unknown and possibly into areas which they find uncomfortable, and it can lead to a fundamental change in a learner's way of thinking.

Reflection in practice can be implemented by students creating a reflective log (Moon, 2004). This can be positioned at a number of different levels: there is a danger that a reflective log could become a predominantly descriptive account of activities, but it also provides the opportunity to create links between theory and practice and to construct explanations for complex observed phenomena. Threlfall (2014) explores the value of a reflective process in encouraging students to take a thoughtful and critical approach to their studies. In the context of the final year of an undergraduate degree course, a practical way to add value to students' experience through reflection is to facilitate the connections between activities in the final year and concepts learned in the earlier years.

So far, the issues raised here have addressed the relevance of reflection to the learning process. However it is instructive to consider the connection between reflection and individual research, at least at the level which could be encountered by undergraduate students.

McNiff and Whitehead (2000) examine the potential for action research, characterised by the presence of iterative processes and the role of researchers as participants, in organisations. They acknowledge a connection with learning organisations, one which is more strongly indicated by Argyris and Schon (1989) in their review of the connections between participatory action research, action science, and double-loop learning. Argyris and Schon recognise the value of a participant observer in understanding organisational processes, but also stress the importance potentially of being able to challenge the theory-in-use that prevails within an organisation.

Silverman (2007) introduces qualitative research as a process of noting and understanding phenomena in everyday life, and advocates an approach with observation at its core. Baker (2006) positions observation as a research method carrying a considerable amount of complexity, but the attraction of using a reflective log as an instrument to achieve observation is that researchers (in the case discussed below, final year undergraduate students with limited time available) can build as much or as little complexity into their analysis as their resources allow.

3. Reflection in practice as an innovative means to support student research skills

3.1 Rationale and context for a new type of project

This section introduces practical experience of using reflective logs with a group of seven students within a management degree. First the rationale for the particular approach to an individual project containing a reflective log is introduced.   The term 'corporate responsibility project' is used throughout this section to refer to this particular type of project. Then the experience is discussed and the possibility of extending the approach is considered.   These students had applied to participate in a particular type of project, based around corporate responsibility, as part of their final year and the orientation of the exercise towards responsible management is a key driver for the inclusion of reflection. This is a recent innovation and has now been offered to undergraduate management students in two successive years, although it is derived from a slightly longer-standing arrangement offered to postgraduate students.   This paper focuses on the undergraduate experience, and only the undergraduates were required to incorporate a reflective log within their work.

The context to this was the need to incorporate a significant piece of individual work within the final year of a degree.   This usually takes the form of an extended essay for which students are encouraged, but not required, to gather primary data through interviews, surveys, or observation. However there is ambiguity about the nature of this assignment. Is it framed as a piece of research, where students need to understand research methods to a greater or lesser extent? Or is it a more lightweight piece of enquiry, where students need to place their own stamp on their work but they are not expected to apply a very high degree of academic rigour? If it is to be an assignment that boosts students' employability, which understandably is something that students of management want to achieve, is this best achieved through students working alongside people within an organisation, or by carrying out a task which is perceived as valuable for that organisation.

There are a number of more detailed tensions within this arrangement. On occasions, students carry out interviews or surveys but do little to link their results to any theory learned earlier in their course – or indeed to any other part of the project. Students value the opportunity to carry out some independent work, but with employability in mind they are often tempted to choose predictable subjects and areas which they perceive to be predictable and widely understood. For instance, a popular approach is to build a project around a business plan. While this is a clearly defined task, without active reflection on the process it is one with limited academic application. And while entrepreneurship is sometimes seen as a subject relevant to dealing with a changing business environment, there is a danger, in creating a business plan as an academic exercise, in becoming preoccupied with the minutiae of implementing the business and ignoring the broader strategic issues around the positioning of their proposed business. Students often set out to work alongside a business, as a way to gather data, but there is a tendency to document the business's activities without any depth of analysis as to their relevance.

While the principle of the final year project remains highly valued within the institution, there is a palpable concern among academics that its implementation could be improved. On a number of occasions this was raised as a concern at faculty meetings, by staff responsible for supervising these projects. These discussions gave rise to consideration of possible alternative formats for student projects, and the corporate responsibility option was devised as one such alternative format. In its original form, as implemented with postgraduate students, the requirement was simply for students to work, part-time, within the corporate responsibility function of an employer for a while and to write an extended account of the experience. While this satisfied the desire from both students end employers to gain concrete experience which could boost students' employability, it offered limited scope for students to carry out any structured form of research.

When the corporate responsibility project was first offered as an option for undergraduate students, after discussions between the course director and colleagues responsible for implementing the project, the reflective log was added. Reflection was built into the task because of its position within the process of observation, which in turn is crucial to qualitative research. At a practical level, a reflective log is an accessible tool to carry out research through observation, and thus was a valuable component of the one stage within an undergraduate degree where a certain amount of independent research is expected. In this context, then a reflective approach offers scope to bridge the gap between students' desire to gain working experience, and their need to gather and analyse data.

3.2 Implementation of the corporate responsibility project

Students with an interest in the corporate responsibility project were invited to apply to participate, at the start of the final year of their degree. The corporate responsibility project was offered to students as an alternative to the standard project, with the process being more clearly defined, and more focused on a particular organisation, in the corporate responsibility project, than would normally be the case with the standard project. For students adopting this approach, the reflective log became one of the deliverable requirements and a key element of the project, because this constituted a way to formalise the process of observing what happened within the organisation.   In broader discussions with undergraduate students, and not only the ones taking the corporate responsibility project, the advantages and disadvantages of using primary data were discussed: for undergraduate students a disadvantage can be that only a limited amount of primary data is available, and it can depend on sampling processes which are crude or even non-existent.   For students taking the corporate responsibility option, the reflective log became the students' principal source of primary data. These students had immediate access to the organisations within which they work working, and were therefore in a strong position to acquire high quality observational data. They would use their experience as the basis to write an analytical report, as well as a reflective log.

The implementation included a number of other important factors. Students were expected to draw up a partnership agreement with the organisation with which they were to work. The organisation was expected to focus the student's activities around a particular challenge, or current activity, which was at the forefront of their corporate responsibility activities. While the student was expected to write both a log and a report for the university in as part of their degree studies, they were also expected to provide some assistance to the organisation with which they were working, and in practice there was little assurance that the aims of the organisation were congruent with those of the students.

Some of the students had earlier experience of reflective logs, depending on which path and what options they had taken earlier in their degree. All of them had some training in gathering information and in practical problem solving. However a long-standing challenge on the management degree was to ensure that students drew effectively on this training, as many of them failed to appreciate the relevance of material from earlier years at the project stage.

Nevertheless one of the challenges faced in implementing this approach was that the students, in general, were uncertain of what was expected from them in terms of reflection. They expected clear guidance on the format, and were nervous of including material that might appear critical of the organisations with which they were working, or of the academics involved with the project. Worse, the format that was most tempting to use, which was a simple day-by-day diary approach with minimal analysis of specific themes, actively inhibited students from drawing conclusions or from evaluating their activities effectively.

3.3 Lessons drawn from the reflective logs in practice

So one lesson of the experience concerned the level of guidance necessary for students to write effective and conclusive logs. In particular there was a move away from the diary format towards a reflective log structured by themes (for instance 'challenges faced' and 'dealing with the challenges') and by noting personal feelings and responses. For instance one observation, important to a student and clearly something which they would expect to encounter once they entered the workplace, was 'the culture of the environment and informality within the workspace… baffled me on the first day'. Significantly, this student had expected to work in a more structured environment but welcomed the unexpected informality as a valuable learning experience. Another student, again discussing challenges, expressed concern about the lack of definition in the project specification that they were initially offered, but then wrote powerfully about the efforts made to overcome this. The log observes 'I had to build from my own professional network and avail every opportunity that became apparent' – this from a final year undergraduate student looking for interviewees for data gathering. Fortunately the same student was fulsome in acknowledging principles covered elsewhere in the degree, saying 'I learned about [approaches to deal with these difficulties] from Systems Thinking, which was a core module.

Some useful statements referred to the motivation for students' participation – for example 'as a future entrepreneur I could not pass on the occasion to learn more about corporate social responsibility'.

Perhaps the most significant theme from the reflective logs was that they conveyed both the good and bad aspects of the student experience. One of the students recorded difficulties in getting the support and input from the university that they would have hoped for in the early stages of the project – a specific issue where this student's experience did fall short of what might have been hoped for, but also wrote powerfully about the learning process once these delays were past. Even though the reflective logs in general did not follow a purely chronological pattern, they did effectively convey the sense of students' experiences evolving over time.

3.4 Timing and supervision

Some of the practical issues associated with implementation of the corporate responsibility project stemmed from the relationship between the timing of the project and the academic year. It was not feasible to start the selection process for participants, nor the process of matching successful participants with organisations that they would work alongside, until students returned from their summer vacation for the final year. This had consequences for the timescale for the entire project, and although feedback from students, employers, and tutors has been generally positive there was some frustration that academic supervision was not in place until some time into the students' final year.

The use of the reflective log posed challenges for the academic staff operating as supervisors. Despite the extent to which the task was defined in detail, supervisors, often used to dealing with more traditional projects, found it difficult to adapt to this novel type of project. Little formal guidance was offered as to how to mark the reflective log even though, within the formal mark scheme, a proportion of the marks was set aside for this component of the work. Supervision was divided between a number of academics. Some had been closely concerned with teaching corporate social responsibility to final year students, and were in a strong position to judge the extent to which students drew on concepts from the taught part of their degree. Others had little contact with undergraduate students beyond this particular project, in in some cases needed some guidance on how to calibrate marks – what would be expected of a project that merited a distinction, or a project that was only just adequate, and so on.

An observation from one of the supervisors, specific to the circumstances where students were submitting both a reflective log and a separate project report, was that on several occasions students included material within the log which would have worked better within the report, especially if the log encapsulated issues which would have merited inclusion in the conclusions.

In terms of gauging the success or otherwise of this type of project, all the participants attained marks consistent with either a first class degree or a high upper second. However this was a small cohort and a self-selecting one, so this observation should be treated with caution and certainly does not imply that all students have the potential to attain high marks were they to take the corporate responsibility option.

4. Developing the application of reflective logs and building on lessons learned.

Drawing on Schön's concept of moving beyond the stable state, the process of reflection can be valuable in identifying distinctive and unexpected insights. It is most useful in projects where the scope shifts slightly during the project, as for example in one particular case, for the corporate responsibility project, where the consequence of the student's contribution was partly to tone down the organisation's ambitions set out at the project's inception.

Reiterating the issues covered in section 2 above, it is possible to extract a number of strands and it is worth considering how these related to the corporate responsibility project:

- Double-loop learning: operationalised in the corporate responsibility project by the ability of students, as outsiders, to bring consideration of the broader context to bear on a practical situation

- Threshold concepts and understanding complexity: taking students, even in their final year when as undergraduates they are in danger of becoming jaded with the academic process, into a new and challenging area

- Action research: by students operating as participant observers and potentially recommending change to organisations, they can become action researchers.

There is one additional factor – the need to provide effective supervision for projects with a reflective component. Student projects require a measure of one-to-one supervision and therefore are expensive in terms of staff commitment. Moreover it can be difficult to ensure consistency of approach between different projects and supervisors. Within the institution there is already some concern about the resources necessary to deliver supervision.

One question, in the spirit of prompting reflection by asking unexpected questions, was whether the format with a reflective log as a source of primary data could provide a template for a broader range of projects. This needs to be set against the range of projects that students can undertake, and particularly the point that not every project includes anything tangible that students can reflect on. Observation of events within an organisation is not a technique specific to corporate responsibility. Pragmatically, a possibility is to give students the option of building reflective logs, similar to those adopted for the corporate responsibility projects, into any type of project. It becomes the student's responsibility to ensure that it is possible to provide worthwhile content within their reflective log. But this sort of approach would be relevant to a range of settings, particularly those associated with organisations promoting innovations or in a state of flux for other reasons.

Potentially it would be useful to identify further the characteristics of an effective reflective log – noting that this is produced in parallel with a conventional project report, and working towards a checklist which supervisors can use.

To this end it is worth reprising some of the characteristics of effective logs – these would be worth promoting for corporate responsibility projects and others alike:

- Recognise that the reflective log forms part of the primary data for a project, and use it to foster a reflexive process where the student's learning is directly informed by the content of the log
- Demonstrate evidence of understanding both immediate problems and challenges, and the underlying causes (Argyris's concept of double-loop learning)
- Be prepared to move away from a purely chronological arrangement of a reflective log
- Discuss emotions, responses, and challenges that arise as a consequence of events, and use these to add and recognise complexity within an organisation
- Be prepared to be critical – in practice this may be easier if the circulation of the log is restricted and it is not shared with individuals who might be criticised within the log
- Link the log to concepts from the course, but do not use it to convey concepts which might be better discussed elsewhere
- Ensure that both successful and unsuccessful elements in the activity are included, and use this to foster a thoughtful and critical approach

Conclusion

As discussed above, the opportunity for students to carry out a reflective log in parallel with producing a final-year project (hence the title reflection-in-addition) offers scope for students to build qualitative and observational research into their work. Within the author's institution the reflective log introduced into the corporate responsibility project offered an approach for students to work alongside an organisation, while at the same time recording their observations. The key for the students was to recognise that the reflective log provided primary data for their project, and to use it as a spur to write critically and analytically about their experiences.

While there are many ways to make an undergraduate student project into a piece of research, albeit often a small-scale one, the use of a reflective log has particular attractions. It encourages observation and allows students to build their own complex understanding of a situation. And because it can start with a simple account of what the student has done and what they have seen, it can be introduced as a pragmatic and understandable research instrument.

Returning to the aim of this paper, it became apparent that some important practical enhancements could improve the corporate responsibility project. One, despite the constraints of the timescale, would be to bring academic supervisors into the process as early as possible, to ensure that the whole process is carried out by students with appropriate academic rigour. With a small group (10-15 at the most) of students taking this option there is considerable scope for specialised workshops covering particular aspects of the project process. Reviewing the idea of the log in connection with reflective practice and action research, its potential as an instrument for gathering data is apparent.

Another is to provide more detailed guidance of the process for writing reflective logs, and more checkpoints during the project process where students can check what progress is being made, and whether the logs really do provide material to support a worthwhile project.

Although the log is a distinct deliverable from the project report as far as students are concerned, a final thought is that in practice the two deliverables are closely linked and both need to be taken into account in evaluating student projects.

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