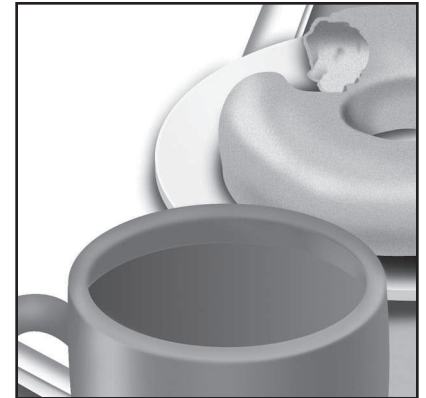


Using Guided Reflective Journaling Activities to Capture Students' Changing Perceptions

By Joanna C. Dunlap



Many professions are increasingly emphasizing the role of reflection, encouraging educators to look for appropriate ways to help students engage in reflective practice during their professional preparation. Journal writing is an insightful and powerful instructional technology utilizing strategies that foster understanding and the application of concepts (see Connor-Greene, 2000), enhance critical thinking (see Hettich, 1990; Hodges, 1996), improve achievement and attitude (see Borasi & Rose, 1989; Jurdak & Zein, 1998), encourage student reflection and capture changes in students' perception (Dunlap, 2005a, 2005b).

Examples of journaling writing as an instructional technology

One way of encouraging and documenting reflection is journal writing (see Erdman, 1983; Flower & Hayes, 1981; Gipe & Richards, 1990, 1992; Yinger & Clark, 1981). Journal writing is an effective instructional technology because it:

- Encourages students to reflect on and articulate their thinking and problem-solving strategies (Fogarty & McTighe, 1993);
- Supports effective acquisition and transferability of cognitive and metacognitive skills (Perkins, Simmons, & Tishman, 1990);

- Encourages students to identify and analyze their difficulties, make suggestions for solving problems and ask and pursue questions on their own (Clarke, Waywood, & Stephens, 1993); and
- Makes conceptual and perceptual changes visible for assessment purposes (Dunlap, 2005a, 2005b).

Examples from three different professional preparation courses, presented below, demonstrate the power of journaling to achieve these outcomes by encouraging students to reflect on and share their changing perceptions of their work, learning and achievements.

Changes in students' perceived use of lifelong learning skills over time

During a semester-long, undergraduate C++ programming course, I engaged 26 computer science students (juniors and seniors) in a journal-writing activity (see Dunlap, 2005a). The course objectives were to develop students' understanding and application of the C++ language syntax, object-oriented design and programming techniques and lifelong learning skills needed to stay current in the ever-changing software development profession after graduation (a critical skill set sought after by information technology employers). To achieve these objectives, the students took on the roles of contracted C++ programmers who needed to solve authentic problems of practice. The programming projects required students to learn specific content and skills in order to develop



viable solutions. Howard Barrows' model of problem-based learning (PBL) (Barrows, 1985, 1992; Barrows & Kelson, 1993; Barrows & Tamblyn, 1980) informed the design of the course and programming projects.

To encourage students to share perceptions of their development and use of these skills while working on the authentic projects, I had them respond to a set of guided journal questions at the end of each week. I designed the journal questions to elicit the students' perceptions of their own lifelong learning skills — specifically, perceptions of their capacity for self-directed learning supported by metacognitive awareness. Because the journals were due each week, they allowed me to observe and assess changes in students' perceived use of lifelong learning skills during their authentic activity. Through the students' journals, I observed an increase in their use of lifelong learning skills during the PBL project.

Changes in students' self-efficacy over time

During a required semester-long undergraduate capstone course in software engineering, I used journaling to track 31 students' perceptions about their abilities to be software development professionals while they worked on real projects with real clients (see Dunlap, 2005b). The purpose of the capstone course is to help students apply what they have learned in previously completed software engineering courses to professional problems of practice. Using problem-based learning (PBL), a learner-centered teaching approach that engages students in an iterative, continuous process of building and reshaping understanding as a natural consequence of their experiences and interactions with authentic problems of practice (Barrows, 1985, 1992; Barrows & Tamblyn, 1980; Grabinger, Dunlap, & Duffield, 1997; Walton & Matthews, 1989), students took on the role of software engineers and worked in groups of three or four to define actual clients' problems and associated needs, write proposals, conduct analyses, design solutions and implement and test those solutions.

To capture changes in students' self-efficacy, I had students respond to a set of guided journal questions. Their responses were due every three weeks during the semester. Using the self-efficacy literature for guidance, I designed the questions to capture self-efficacy perceptions by asking students to reflect on their ability to organize and implement the actions needed to perform effectively in the software development profession (Schunk, 1989) at different points during the PBL experience. The journals

documented changes in students' self-efficacy throughout the semester, allowing me to assess their progress throughout the project. The guided journals showed a change in almost all of the students' perceptions about their abilities to be software development professionals — from a lack of self-efficacy before their semester-long PBL experience to confidence at the end of the semester.

Changes in doctoral students' self-efficacy and perceived use of conceptual tools over time

In this example, I used journaling to help 12 doctoral students in a semester-long course on the theoretical bases of instructional technology focus on their personal preparedness to participate in the professional community of practice through scholarship and publication (see Dunlap, in press). The course has two purposes: 1) to examine the potentials and limitations of technology for teaching and promoting learning, and 2) to examine contemporary theoretical and research foundations of instructional technology. To achieve these goals, students took on leadership roles — such as scholars, writers, reviewers and collaborators — in a professional community of practice interested in instructional technology. This community of practice — the *NOVations* online journal — situated students' learning to support their enculturation into the community of educational scholarship and publication using the community's tools for scholarship and publication, and helping them identify themselves as scholars, writers and reviewers in the community of practice.

Students completed a guided reflective journal every two weeks throughout the course. The journals helped students focus on their perceptions of personal preparedness to participate in the professional community of practice through scholarship and publication. Through their journal writing, students documented changes in their self-efficacy and perceived use of conceptual tools. The guided journals showed a change in most students' perceptions about their abilities to contribute as scholars — from a lack of self-efficacy before their semester-long *NOVations* experience to confidence at the end of the semester. A few students also revealed a change in their self-efficacy based on acquiring a more realistic view of what it means to contribute to the professional community of practice through scholarship and publication — that it

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entails a lot more than they thought it did initially.

These three examples illustrate how guided reflective journaling activities can encourage students to recognize their accomplishments throughout an instructional event (activity, project, course), and reflect on their personal development of important professional content, skills and dispositions. The journals in all three examples gave students a voice by allowing them to describe — in their own words — the changes they were experiencing and the accomplishments they were achieving, enabling me to track changes in their perceptions about their professional development.

Recommendations for structuring journal-writing activities

These three examples illustrate the power of journal-writing activities as a way of encouraging students’ reflective thinking, and giving faculty a way to assess students’ reflective practice and perceptual changes. Based on my experiences and the lessons I have learned while using guided reflective journals with students in several of my courses, I have defined a number of strategies that can increase the likelihood of this instructional technology’s success for self- and instructor assessment in the classroom. My recommendations for structuring journal-writing activities with students are presented below within four categories: constructing journal questions that work, scheduling journal writing activities, reinforcing the value of journaling, and supporting students’ journaling.

Constructing journal questions that work

1. Provide students with cues or guided questions to help them focus their journal responses. Open-ended journaling can be useful to encourage creativity and brainstorming, but if you are looking for evidence of particular outcomes, be specific about what and how much you want students to share. In all three examples above, I was looking for evidence of specific perceptual changes, so used guided questions to help students focus on those aspects of their activity. For example, to capture changes in students’ perceptions about the value of working collaboratively with others, I asked, “Describe your contributions to a collaborative effort this week. What did you achieve? What did others achieve? What would you have done differently if you had

been working alone? What do you think you would have achieved working alone?” In response to this set of questions, one student wrote:

The development team has been an incredibly useful resource this week. One member had a good solution for the initialization part of the program. One member found the H-P list class library. One member found information on protecting the data in the classes. There was some confusion about the readings, so I provided a summary, double-checked it with the instructor, and then presented it to the team. So I feel we have all been contributing this week, with important solutions to problems, and I know I wouldn’t have been able to do it all without everyone’s help.

This student’s journal response illustrates how this set of questions helped him reflect on and articulate his perspectives related to the collaborative activities of the week.

2. Situate journal questions in students’ actual work context. Situating journal questions in a work context helps students make connections between what you are asking them to reflect on and their actual activities. For example, in Point 1 above, I could have asked students, “What is the value of working collaboratively with others?” By asking them to consider specific collaborative activities of the week, and what everyone accomplished because of that specific collaboration, students not only addressed the “what is the value of...” question but also engaged in important reflection about what they had learned and achieved.
3. Construct the guiding questions to capture the conceptual and perceptual changes in which you are interested. I use the literature to help formulate the questions used in my courses. This helped me to construct questions that focus the students’ responses on the issues I want to track. For example, when using journaling activities to track changes in students’ perception regarding their use of lifelong learning skills, I used the literature to define lifelong learning skills, which in turn enabled me to construct specific journal questions that would encourage students to reflect on those skills. One of the lifelong learning skills I was tracking, based on the literature, was ability to activate relevant prior knowledge and assimilate new learning. Therefore, I

asked students to respond to the following questions in their journals:

What did you already know that was helpful this week? Don't restrict your answer to things learned in this course. Did you learn something in other computer science courses that was useful? Any debugging techniques? Any work experience? Any way of approaching a problem? How were these things useful?

What new information did you acquire this week that changed your understanding of the problem that you had last week? How did you acquire this information?

4. Conduct a formative evaluation of the journal questions before using them with students to make sure they elicit the desired responses. The formative evaluation can identify poorly formed questions that receive short and shallow responses, and questions that generate responses that are not successful in capturing the intended conceptual or perceptual change. For example, one question I designed early on was, "What human resources did you use this week, and why?" During formative evaluation, I realized three problems with the question:

- Many students did not know what I meant by *human resources*;
- If they did know what I meant, they focused their response on how they used the instructor to answer questions instead of considering how they used their peers or practitioners available via online discussion forums; and
- I did not get all of the information I desired because I wanted students to also evaluate the effectiveness of their use of human resources.

I discovered these problems by working with a focus group. I always ask three to five students who are not members of my ultimate audience to respond to the questions before I use them in a course. Then, after looking at their responses to determine which questions provide me with the information I want and which do not, I invite the same students to help me enhance the questions that did not work. This focus group structure allows me to ask "what if" questions about possible enhancements, and encourages me to consider different and unique ways of asking for the information I want. In working with the focus group on the question above, I found that a simple

adjustment to the question — "What human resources (such as your peers, practitioners available via online forums or in the field, or your instructor) did you use this week, and why? How did it work out?" — solved the problem.

5. Change up your questions so students do not get bored answering the same ones repeatedly. Even if you want to track the same change over time, you can ask the question in a different way. For example, instead of asking, "What new skills have you learned over the last two weeks?" each time, you can gather the same information by asking learners to do the following, "Update your resume to reflect the new skills you have learned over the last two weeks." Because I was interested in tracking specific changes throughout the instructional event, I worked very hard to create sets of questions that were worded differently and had students thinking about the topic in different ways (such as the two questions above), but helped me achieve my tracking objective.

Scheduling journal-writing activities

6. Weekly journaling can lead to burnout, which diminishes the quantity and quality of students' journal responses. As an alternative to weekly journaling, ask students to submit journals every two or three weeks. This is the strategy I used in two of the examples presented above, and the spacing helped maintain students' willingness to journal and the value of their responses over the course of the semester (in the first example, students engaged in weekly journaling over a five-week period, so burnout did not set in). Another option is to time journal-writing activities to coincide with key points during projects (e.g., after a presentation to the client, at milestone and go/no-go points and at the conclusion) and learning activities (e.g., before and after a significant teaching event such as a field trip or debate, or after a midterm examination). Besides giving students a break from a weekly activity, this timing provides students with a clear context for reflection; helps them articulate new learning, achievements and appreciations; reinforces that reflection is a normal, on-

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going activity in which professionals engage; and promotes a habit of reflection.

Reinforcing the value of journaling

7. Explain why you are asking students to respond to journal questions. The journal-writing process helps people learn from experience by prompting them to engage in reflection-in-action (reflection while involved in the activity) and reflection-on-action (reflection after the activity) (Schön, 1987), which is foundational to being reflective practitioners. Share this belief with students, and share examples of reflective activities in professional contexts (e.g., project debriefs, milestone presentations and reports and project/status tracking journals; see the next section). In my courses, the journaling is part of students’ class participation grade, but I do not formally evaluate students’ journal responses for content. Therefore, in order to elicit insightful responses consistently over time, students need to understand how and why reflection is an important professional value so they do not come to see the reflective process as strictly an academic exercise.

8. Make the journal format reflect professional, workplace journal formats when appropriate. In some professions, keeping a journal is a required activity for tracking status, ideas, decisions and so forth and takes on legal implications. Using an existing professional format helps students learn about the value of journal writing in the workplace. For example, in the computer science courses, students were introduced to project diaries as a way of tracking all work done on a particular project, including the details of conversations with stakeholders, decisions made, goals achieved and lessons learned.

9. Encourage students to revisit their previous responses so they can witness their own growth and development over time. This is a powerful reflection activity for students because it reinforces achievements and shows them how far they have come. I discovered the value of this strategy when working with

the doctoral students. I asked the doctoral students to reflect on the journaling activities for the entire semester and to provide feedback on how to improve it in the future. Instead of providing me feedback, they focused on and were fascinated by the changes they discerned in their responses over time. The debriefing process ended up reinforcing how much they had achieved during the course, how much their ideas and perspectives had evolved and how much more confident they were about their abilities.

10. Respond to students, either individually or collectively. If you do not respond, students will question the value of the process and the value of what they have shared. When you as an instructor respond to the students’ journal entries it establishes your commitment to the process and sends a clear message that you care about what they have to say. If you have a large group, or student responses have some uniformity, you can respond to students as a group, focusing on common comments, issues, concerns, revelations and so on. I did not use this strategy in the courses described in this article because they were part of a series of research studies and the research design prohibited instructor feedback. Responding to students’ journal responses in my other courses, however, has encouraged students to take the journaling more seriously; helped create a safe environment for students to express themselves, share their ideas and ask questions; and helped me anticipate and proactively address students’ questions and potential problem areas. For example, reflecting on the value of the journaling activity, one student shared:

Previously and within other courses there was not as much freedom and encouragement to express your own professional views. Because you [the instructor] have read and answered and commented on my journals I feel that my learning has been enhanced and supported in a very positive way with this course. My confidence has been given a boost and I hope to continue on this path.

11. Making journal-writing activities a formal requirement of your courses and assigning points accordingly is another way to value the students’ effort and time. Students in all three examples shared in this article received points for complete and timely responses.

Supporting students' journaling

12. Allow students to practice reflective journaling under “low stakes” circumstances. In each of my courses, I give students up to three opportunities to practice journaling so the unfamiliarity of the activity does not get in the way of their ability to express themselves. I grade journal responses on thoughtful reflection, not on content. I do not downgrade students for incomplete or overly terse responses without first offering the student an opportunity to elaborate on inadequate responses. For example, one student wrote, “I don’t understand Chapter 6 and what it has to do with project management,” so I went back to the student and asked him to elaborate on what he did not understand.
13. Model reflective thinking by providing examples of journal responses. These examples will also show students how much detail you want or expect them to provide. For example, I provide students with my own responses to the journal questions or a set of responses from a previous student if I have her or his permission.
14. Email journal questions and have the students return their responses to you via email using word-processed documents (or, alternatively, make journal questions available via a Web form that students can fill out and submit). This allows students time to compose thoughtful, detailed responses, and makes it easier to sort, search and save their responses for future reference. Encourage students to save a backup copy of their journal responses before emailing them or pasting them into a Web form. This will help eliminate “The computer ate my journal!” excuses. I handled the journal submissions for all three examples described in this article electronically, making it very easy for me to (a) compile responses into a spreadsheet so I could track individual students over time, and (b) create documents for each student so they could also reflect on their journal responses over time.
15. Allow students to compose their journal responses in their own space and on their own time. Reflection is not something that can be rushed or scheduled to occur during the last ten minutes of class. It is important for students to be comfortable and stress-free when they respond to journal questions so they can really focus their attention on the process. Reflection may come easier for some students when they are in their pajamas with a cup of tea! To this end, send students the

journal questions a few days in advance so they can schedule their journaling when it makes sense for them. I used to have students journal at the end of class sessions, which resulted in rushed responses and compromised quality. Now I send the journal questions to students via email or a Web form after class and give them a certain amount of time (e.g., 48 hours) to respond.

16. Stop guiding the journal-writing activities once you believe students can journal without cues. Although I did not do this in the three courses shared in this article since they were part of a research study series, I typically discontinue my guidance three-quarters of the way through the semester or project. You may find that your guided questions in and of themselves have helped students see what questions they should be asking themselves during learning and performance activities, and that even without your cues they are able to reflect on their work and practice appropriately. Moreover, you ultimately want reflection to become part of students’ normal practice and for them to feel ownership over the process. Otherwise, it will just be an assignment and not an integrated, internalized part of their professional activities.

Conclusion

Journaling is “a method of promoting exploration and facilitating reflection on learning and new experiences within the context in which the learning unfolds” (Gillis, 2001, p. 49). Because journal writing focuses students’ attention on personal development of cognitive and metacognitive skills, students’ ability to analyze their own learning and put learning into practice is facilitated (Schön, 1983, 1987). In the examples described above, the journal-writing activities gave students an opportunity to reflect on and articulate their perceptions of their learning processes and achievements, and allowed me to track and assess the conceptual and perceptual changes students experienced to determine if specific learning goals were being achieved. Journaling engaged students in the type of reflective activity that put them in a

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better position to translate theory into practice (Argyris & Schön, 1987), and succeeded in encouraging them to reflect on their personal practice and development. The questions gave students cues as to issues they should consider, helped them focus on what and how they were learning and helped them assess what they had done and what they would do differently in the future.

Journal writing is both a product and a process that helps us “capture an experience, record an event, explore our feelings, or make sense of what we know” (Boud, 2001, p. 9). Using guided reflective journal writing to capture students’ experiences, perspectives and stories — their perceptions and perceptual changes — as they participate in various learning experiences provides educators with a unique technology for assessing cognitive and perceptual changes that are hard to measure with conventional evaluation methods (e.g., exams, essays, PowerPoint presentations). Additionally, journal-writing activities recognize that “humans are storytelling organisms who, individually and collectively, lead storied lives” (Connelly & Clandinin, 1990, p. 2). The use of journaling as an instructional technology gives students a voice by allowing them to describe — in their own words — the cognitive and perceptual changes they experience and the accomplishments they achieve during their learning experiences.

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