

Learning From the Inside Out: A Method for Analyzing Reflective Journals in the College Classroom

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The literature on reflective journals reveals that unless instructors use reflection in an educationally meaningful way, students often view journaling as busywork. The instrument we have designed and propose here for analyzing reflective journal entries provides students with useful methods for reviewing and critiquing connections between classroom learning and practical experience. Because this matrix graphically portrays how concrete or abstract and how cognitive or affective a given journal entry is judged, it holds promise for developing reflective skills and self-understanding. We present a definition of reflective journals, a rationale for the instructional use of reflective journals in professional education, a method for analyzing students' journal entries, and a means for developing reflective skills. Although this work is rooted in human services education, the instrument described here—a matrix for analyzing reflective journal entries—can be used in disciplines in which the use of reflective skills is a valuable component.

Keywords: Reflection, Journaling

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Effective practice in many professional disciplines calls for the integration of theory, application of skills, logical insights, and the attitudes, beliefs, and philosophy unique to each practitioner (Corey, Corey, & Callanan, 2007). In addition, a goal of higher education is the development of professionals who are capable of analysis and self-reflection (Berger & Youkeles, 2000; Corey et al., 2007). Reflective journaling is an instructional tool that may help professionals-in-training develop these necessary skills (Stickel & Waltman, 1994). Further, Dymont and O'Connell (2007) speak to the potential of journal writing as a means of creating a valuable connection between lifelong learning and sustainability. As such, reflective journaling can serve as a method for enhancing understanding of course content, a strategy for making meaning, and a means for illuminating and critiquing student understanding.

In the first section of this article, we present a definition of reflective journals. The next section reviews theories underpinning the instructional use of reflective journals and posits a rationale for their use in professional education. We then propose a method for analyzing students' journal entries. In the final section, we describe a means for developing reflective skills. Although this article discusses uses of reflective journaling in the education of human services professionals, the underlying tenets of reflection apply similarly to other disciplines and to courses requiring introspective writing.

Review of Literature

Occasionally an instructor may require students to reference theory or content in their journal entries by linking personal experiences and observations as they relate to course content. Instructors and students alike may use reflective journaling to analyze and critique students' understandings of course material as well as students' introspections. Stewart and Richardson (2000) highlighted the importance of monitoring the consistency of students' and instructors' critiques. We agree and add that for reflective journaling exercises to be most effective it is best that the students' and instructors' purposes and goals for the exercises are congruent.

Our recent inquiry (Hubbs & Brand, 2007) into the use of reflective journaling suggested little agreement among human services educators as to what the instructional purpose of assigning journal writing is or how information from students' journal entries should be interpreted. In an online survey of counselor educators on the use of reflective journals in

master's- and doctoral-level programs, we found that more than two-thirds (69%) of the 272 respondents (128 males, 140 females) indicated that they assigned reflective journaling in their classes. The results suggested that counselor educators, like professionals in numerous other fields, assign reflective journals for many purposes, including examining counseling students' perceptions and understanding of course content, multicultural attitudes, professional development, and personal growth.

Confirming the adage that we tend to teach as we were taught, the data showed that 53% of respondents indicated they had been required to maintain a journal in their own graduate training and that 69% of them assign reflective journals in courses they teach. However, less than half (44%) of the respondents indicated that they provided students with stated guidelines and criteria for writing reflective journal entries, while more than half of the them (56%) revealed they never provide students with stated criteria or guidelines. In addition, only 21% of respondents employed explicit criteria for analyzing and critiquing journal entries. Although the overwhelming majority (90%) of instructors provided feedback to students regarding their journal entries, it appeared that few had an implicit process for assisting students in transferring classroom learning to experience. Such disparate views and uses of reflective journaling give cause to wonder whether these writing assignments are sound educational practices or simply ritualistic tasks. Our anecdotal data suggested reasons for an examination of reflective journaling, and whether instructors and students can use journal entries as educationally productive and meaningful tools.

Formal and Informal Definitions of Reflection

At an annual conference of the American Counseling Association, a straw poll was conducted with 43 professional counselors who attended a 90-minute presentation on reflective journaling (Hubbs & Brand, 2004). The presentation described a range of written narratives, from informal personal diaries to structured writing assignments requiring students to link course content to their personal experiences and beliefs. It also described different professional disciplines in which reflective journals are used, such as counseling, nursing, education, and law (Hubbs & Brand, 2005).

Asked to characterize a reflective journal, respondents replied with a variety of definitions. Some attended to the potential cognitive outcomes from reflective journaling. For example, one respondent viewed the reflective journal as "an opportunity to think and write about a specific topic." Most, however, viewed the reflective journal process as a means for exploring values and feelings. Another respondent commented, "Reflective journaling is a written self-assessment of our lives, our experiences, our emotions, our thoughts, our goals, and our wishes. It is a path or technique

for self-awareness.” Confirming claims that students may become bored and frustrated quickly with unstructured journaling (Ballantyne & Packer, 1995; Stickel & Waltman, 1994), one respondent described reflective journal assignments as “a nuisance inflicted on counseling students for no apparent purpose but to fill a paper.”

Whereas some respondents loosely used the term *reflective journal* synonymously with log or personal diary, others defined the term more narrowly to emphasize introspection. It was their view that a reflective journal is more than merely a description of a given event; they viewed introspection as a necessary component of the reflection process (Bion, 1962; Schön, 1983, 1987). Thus, introspection becomes an essential element of reflections chronicled in a reflective journal, and we concur with this understanding. Consequently, when a diarist moves beyond recording events and uses written entries to explore feelings, thoughts, and values introspectively, the diary becomes a reflective journal. It is only after the writer reflects on experiences chronicled in the journal that the potential of the medium is realized. Thus, the reflective journalist examines, assesses, tests, and even challenges his or her perceptions of the world. The reflective process is the internal making of meaning that allows the writer’s insights to be overtly expressed.

In 2005, we defined a reflective journal as a written narrative that facilitates ongoing disclosure of the writer’s cognitive and emotional insights. The reflective journal serves as a vehicle for chronicling the writer’s internal processes about experiences, values, and beliefs. Effective integration of cognition and affect is essential for many professionals (Corey et al., 2007), and journal writing that is used throughout training supports the connections between thinking and feeling. As Baldwin (1991) stated, “Writing bridges the inner and outer world and connects the paths of action and reflection” (p. 9).

Theories Supporting Reflective Journaling

The use of reflective journaling in higher education is grounded in adult learning theory (Knowles, 1983; Mezirow, 1998; Rogers, 1982), experiential learning theory (Dewey, 1933, 1938; Kolb, 1984; Vygotsky, 1934/1986), and lifelong learning theory (Boud, 1999, 2001; Brookfield, 1998; Knowles, 1983). Drawing from Dewey’s (1938) notion of active learning, Kolb (1984) advocated for experiential learning as an important means for ensuring meaningful and lasting educational outcomes. Pearson and Smith (1985) highlighted the instructional benefits of structured and directed methods for students to revisit designated experiences.

Kolb (1984) recognized that reflection was a necessary part of engaging the learner, thus suggesting that reflective journaling can produce meaningful or purposive learning. Rogers (1982) also posited ideas

that supported the use of journals as tools for learning, personal growth, and professional development. According to Rogers, “The only learning which significantly influences behavior is self-discovered, self-appropriated learning” (p. 223). Vygotsky as translated by Kozulin (1934/1986) highlighted the connections among thoughts, feelings, and actions, emphasizing the importance of reflection in learning. Others (Boud, 2001; Brookfield, 1998; Goldsmith, 1996; Moon, 1999) identified reflective journaling as an especially successful strategy for encouraging the adult learner to acquire and practice reflective skills and to develop introspective abilities. Kember and Leung (2000) described a taxonomy of reflection and noted the value of critical reflection, or the level at which students reflect about their reflections (a meta-reflection of sorts). Hatton and Smith (1995) described how the written word can serve as evidence of reflection, and they identified four levels of reflection disclosed through writing: descriptive writing, descriptive reflection, dialogic reflection, and critical reflection. Whereas models proposed by Kember and Leung (2000) and by Hatton and Smith (1995) were intended for use in assessing reflection, the matrix presented in this manuscript offers a method for analyzing statements of reflection and provides a structure for collaborative conversation.

Mezirow (2000) espoused the concepts of assimilative and transformative learning, which help explain how reflective journaling provides structured ways for students to introspect iteratively. Joplin (1981) proposed a five-step model of experiential education that embraced reflection as a central element to learning. The work of McClam, Diambra, Burton, Fuss, and Fudge (2008) further supported the instructional benefits to experiential education of using reflection and reflective writing.

Reflective journal assignments can challenge students’ prior patterns of thinking and can result in transformative learning (Boud, 2001; Boud, Keogh, & Walker, 1985). Some have identified the need for an instrument to view and assess students’ reflections (Kember & Leung, 2000; Rogers, 2001). Others have cautioned that student reflection is best left unmarked (Stewart & Richardson, 2000). One must recognize the risk of controversy if reflective journal entries are used as sources of data to assess student performance.

Thorny Questions: Should We Assess Reflective Practices? If So, How?

Some writers have suggested a need for ways of assessing the nature and quality of students’ reflections as well as critiquing the content of reflective journal entries (Kember & Leung, 2000). Others (Stewart & Richardson, 2000) proposed that reflective processes in an academic context should be reviewed by the instructor but not assessed. We suggest that the evaluation of reflective journal entries depends heavily on the

type of course, the intended learning outcomes, and the context in which learning takes place. After all, reflective journals used in courses requiring students to write about their understanding of subject content will differ greatly from journals used for internships or practica in which much of the learning is imbedded in the experience and students must decipher personal meanings for themselves. When journaling assignments focus strictly on course content, the instructor will assess mastery of the subject. When journal assignments ask students to broaden their perspectives by disclosing personal thoughts, feelings, and values (as is common in reflective writing assigned in human services internships and practica), assessment imposes a qualitatively different responsibility for the instructor.

Discerning what the student has learned is an inherent component of instruction. Although an instructor may wish to deal only with classroom content, many educational programs require a level of competence from students that transcends content and that touches on the affective “person” of the student (English, 2001). However, assessing students’ personal thoughts, feelings, and values is, for the most part, outside the scope of common education practices. For reflective journaling to be of value in the evaluation process, both student and instructor must realize that journal entries are simply products illustrating the level of reflection in which students are capable of engaging and are willing to display at a given time.

Nevertheless, the inclination of many instructors is to use the reflective journal as a means for gathering data to evaluate learning outcomes (Elbow & Clarke, 1987; Hubbs & Brand, 2007). We urge that these decisions should be weighed judiciously, because if the reflective journal is to be used for the purpose of assessment, it should serve as a means for assessing student learning, not for judging student performance.

A conundrum arises when the focus of reflective writing is on the assessment of content rather than on the process of reflection. What one instructor judges as a deeper reflective statement, another might view as shallow and simplistic. Furthermore, what may be a deep reflection at one point in time may be a matter of common knowledge at another. Two questions consequently arise. First, how do we assess the process of engaging in reflection? Second, how do we accommodate inherent differences in reflective capabilities among students?

Journal entries vary in depth of reflection from entry to entry and from student to student. Not every journal entry is necessarily reflective, nor does it need to be. Some statements simply convey information or describe the context for the writing while others disclose thoughts, feelings, and attitudes. The reflective process requires students to shift from information to introspection and to judge when to provide information and when to engage in reflection. Thus, a comprehensive assessment of reflection should accommodate both information and introspection.

Another conundrum arises from the lack of a language that describes and facilitates the communication of reflective practices. Many professions, interest groups, and organizations employ common languages that carry specific meanings in the context of their affiliations. Common languages serve to abbreviate, clarify, and expedite communication and to minimize misinterpretation and miscommunication within a given group. Reflection, however, has no such language and, thus, poses challenges to clear and comprehensive communication about thoughts, feelings, and attitudes. The effective use of reflective journals requires a common language to communicate about reflective practices and writings. In order for a dialogue about a given reflection to occur, the instructor and student need a common understanding of the concepts and words used. Without a precise common language, students with varying writing, reflection, and communication skills will attempt to satisfy the requirements in different ways. However, unbounded by a common language, the various skill levels leave fertile grounds for misunderstanding or misinterpretation. For example, a student describing her mild and short-lived depressive episode may believe she is engaging in introspection, but her instructor may view this as simply sharing information. A common language would provide them the means to determine collaboratively where her writing about her depressive episodes would fit on a continuum from information sharing to introspection.

Although an instructor may simply assign reflective journaling without much direction, we advised that students be provided guidance in the instructional purposes and execution of reflective journal writing (Hubbs & Brand, 2005). Marchel (2004) noted that underlying the assignment of journal writing is an assumption that the act of chronicling thoughts and feelings will aid students in their personal growth and professional development. Boud and Walker (1998) concurred, stating that some educators believe that students benefit from the act of reflective writing alone, even without guidance from the instructor. They cautioned, however, that those who study uses and functions of reflective practice believe otherwise: "Without some direction reflection can become diffuse and disparate so that conclusions or outcomes may not emerge" (Boud & Walker, 1998, p. 193). We believe that the potential learning gains from reflective journaling will be optimized if the instructional goals and the instructor's expectations of that exercise are made clear to the student. We advise, therefore, that clear direction be provided to students regarding the instructor's expectations. For example, instructors should provide students with information regarding the length of journal entries, the demonstration of understanding of course content, the linking of students' experiences to course content, and the topics to be addressed in their journal entries.

To date, few methods for assessing reflection have been proposed. Stewart and Richardson (2000) attempted to assess student reflections by coding and categorizing student reactions to reflective writing assignments. Kember and Leung (2000) developed a questionnaire to measure four levels of reflection, including habitual action, understanding, reflection, and critical reflection. Fenwick (2001) discussed options for assessing reflective writing such as using a rating scale and also noted that journals may be assessed by individual entries or holistically.

However, when an instructor assigns credit simply for completing a journaling assignment, assessment is reduced to little more than word counts. According to Brown, Bull, and Pendlebury (1997), students attend to what is assessed rather than to what the instructor says is important. Consequently, when assessment criteria measure word count—and only word count—students focus on the quantity of verbiage rather than on the quality of reflection. Learning opportunities afforded by reflective journaling thus become devalued.

For an effective learning process to take place, instructors—without making judgments about the students' values, thoughts, and feelings—must clearly indicate the importance of the quality of reflective writings and of the development of reflective practices. The thorny questions, then, become whether to assess reflection, what data should be assessed, and what criteria apply. One additional question arises, too: Who conducts the assessment? Issues surrounding the assessment of learning are central to every educational endeavor, including experiential education.

A Method for Analyzing Reflective Journals

In an optimal learning situation, educators and students share a common language for discoursing about students' introspections, insights, and thought processes. Presented here is a tool we designed to assist instructors and students in forming that common language in order to examine, analyze, and critique reflections expressed in the students' journal entries. Use of this tool permits instructors and students to work together in determining to what extent a student moves beyond basic understanding of course content toward integration of knowledge. This tool can be used with students in one-on-one sessions, within an online format, or through exchanges of hard copy. Each option provides insights into students' learning, and for the learners, insights into how they may learn best. Thus, students are introduced to new and different ways of thinking through the use of reflection. Given the issues and admonitions on assessing students' reflective journals, we offer this tool only as a means of illuminating and analyzing reflective journal entries.

In this proposed process, the student and instructor analyze reflective journal entries collaboratively. Some may take issue with students

and instructors sharing analysis and assessment responsibilities. However, when the instructor involves the student collaboratively, dialogue can focus on developing reflective skills in addition to focusing on the thoughts, feelings, and values expressed in a journal entry. Further, the ensuing conversation provides the student opportunities to clarify and to elaborate on statements, thus reducing the likelihood of the instructor reading mistaken meanings into the student's writings. Additionally, a guided conversation using a common language can lead the student to reflect on the act of reflection, or in other words, to function at a level of meaningful meta-reflection. According to Joplin (1981), "It is the reflection process which turns experience into experiential education" (p.17). Introduced next is a framework for structuring that guided conversation.

Figure 1 illustrates two continua merged into a 2 x 2 table, with the context of the journal entry forming one axis and the level of reflection forming the other. A journal entry focusing superficially on content and including little or no emotional value represents a Quadrant A statement, whereas a Quadrant B entry, although similarly superficial, includes an emotional context. An entry that transcends superficial understanding and suggests a more complex comprehension of content signifies a Quadrant C response. A Quadrant D entry is even more complex because it represents an introspective process that merges self-awareness with insightful analysis.

This process parallels the steps Joplin (1981) espoused in her five-stage model of experiential education in which she proposed that learning is optimized when students focus, act, encounter support, receive feedback, and debrief their educational experiences.

First, the journal entry is graphed on the continuum ranging from content focus to process focus. To do this, the instructor and the student determine collaboratively whether a given journal entry characterizes a content statement, which focuses outside the student, or a process statement, which discloses the student's level of introspection. For example, a counseling student might write, "Rogers's Person-centered Therapy lets the client take the lead." This is a factual statement focusing outside of the student, and it is therefore a content statement. A parallel reflective journal entry written by a teacher education student might read, "Bloom's taxonomy can be used for writing instructional objectives." Again, this is a statement of fact with no emotional content or personal connection.

As opposed to a content statement, a process statement incorporates the student's thoughts, feelings, or attitudes. Thus, the counseling student's process entry might appear as, "I feel awkward using person-centered therapies." Concurrently, a process statement written by the education student could read, "I don't like writing higher-level instructional objectives because they're harder to evaluate." Reflective journal entries of nursing students, law students, and business students, for example, can be similarly examined along this content-to-process scale.

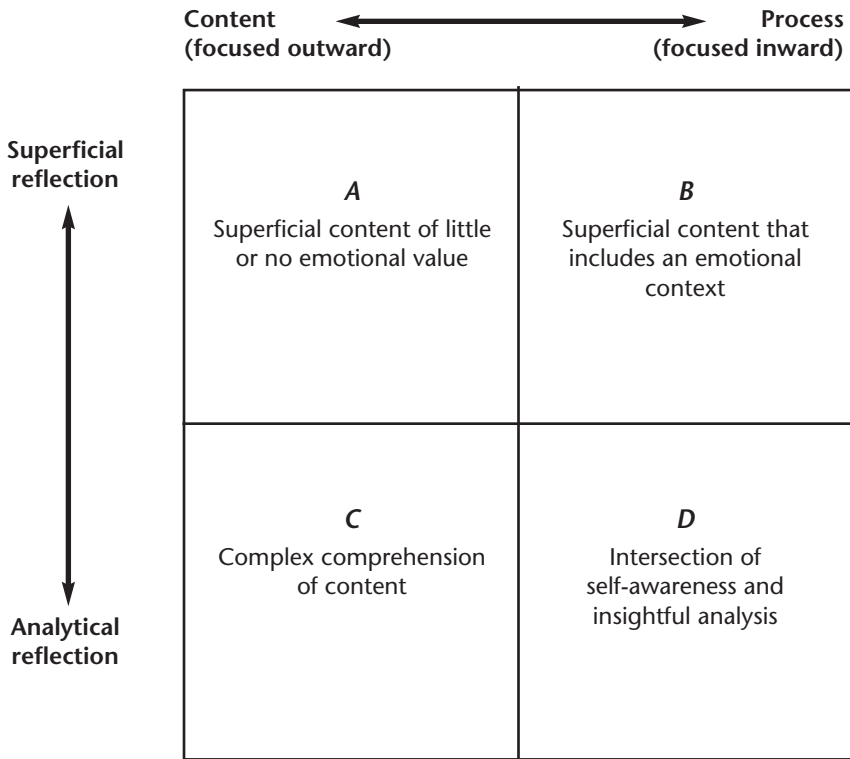


Figure 1. An illustration of the two continua merged into a 2 x 2 table, with the context of the journal entry forming one axis and the level of reflection forming the other.

A journal entry may simultaneously be graphed on the superficial-to-analytical continuum. For example, the counseling entry “Carl Rogers developed Person-centered Therapy” is a superficial content statement with no evidence of analytical thinking or interpretation attached (i.e., a recitation of fact). A statement indicating a more analytical and reflective insight might read, “Although Rogers’s Person-centered Therapy is powerful in many situations, I can see that some clients require more direction.” The first entry suggests a cursory understanding of the origins of a given theory and is classified as a Quadrant A statement. The second entry presents a conclusion reached through analysis and is a Quadrant C statement.

Quadrant D is categorically different from Quadrants A, B, and C because it is at this junction that self-awareness and analysis merge. Ideally, students become adept at blending introspection with analysis, and Quadrant D statements are examples of this merger. Thus, Quadrant D statements include elements of process, introspection, and analysis that reveal how the comprehension of content merges with the student’s

preferred style of professional practices, sense of self, and view of the world. An example of a Quadrant D statement is, “Although I believe marriage should be a lifetime commitment, I recognize that this is a value I hold for myself. I also know that my clients’ marriage may not last, and I am able to see that the end of their marriage is neither a failure on their part nor a failure on my part as their counselor.” This is a Quadrant D statement because it displays both self-awareness and introspective analysis.

It is our experience that students tend to begin early journaling entries with Quadrant A and Quadrant B statements. Often, early entries simply reiterate what the student encountered in class or in the internship/practicum experience, or the entries may contain self-focused statements that fail to include a reflective component that examines and connects observations with new learning. With practice, students write entries that evolve from superficial statements (Quadrants A and B) to those implying critical reflection (Quadrants C and D). Although the 2 x 2 table provides some insights into the thought processes underlying reflective journal entries, our students favored a more refined method of examining subtle differences among entries. Consequently, the 2 x 2 table was expanded to a 5 x 6 matrix with each matrix cell representing a more precise magnitude of reflection. Similar to the 2 x 2 table, the matrix illustrated in Figure 2 depicts the content-process continuum on the horizontal axis, beginning with content-focused comments on the left and then progressing to process-focused statements on the right. Figure 2 also depicts the superficial-analytical continuum on the vertical axis, beginning with statements containing no evidence of analytical thinking or interpretation positioned at the top and then progressing to those containing reflective or analytical insights at the bottom.

Each statement in a matrix cell represents a point on the horizontal content-to-process continuum and on the vertical superficial-to-analytical continuum. For example, the journal entry “Rogers’s Person-centered Therapy lets the client take the lead” is a factual statement and falls into Quadrant A of the 2 x 2 table or into Cell 1A of the full 5 x 6 matrix. Another entry, “I felt awkward using person-centered techniques,” references emotional content and is categorized in the 2 x 2 table as a Quadrant B entry. The entry simply reports a feeling, so it is categorized more precisely as a C3 statement on the 5 x 6 matrix, which reflects the magnitude of insight represented in the journal entry. The other example previously designated as a Quadrant C statement read, “Although Rogers’s Person-centered Therapy is powerful in many situations, I can see that some clients require more direction.” When applied to the 5 x 6 matrix, this entry could represent a Cell B5 statement because it demonstrates the student’s understanding of how theory interacts with real life. The entry could also be categorized as a Cell B6 statement because it acknowledges potential conflict and analyzes possible outcomes.


		Content (focused outward) ←			→ (focused inward) Process	
		A	B	C	D	E
Superficial reflection  Reflective analysis/ introspection 	1	Acquiring facts/data	Acquiring new information (e.g., principles and concepts)	Engaging in a reflective journal process	Expressing in a self-focused but not self-disclosing manner	Elaborating a factual biography
	2	Recognizing that one's profession is influenced by legal, moral, and ethical guidelines	Organizing facts and data into new information	Identifying one's own values, thoughts, and beliefs on an issue	Using new information as a building block for examining one's values, beliefs, and attitudes	Acknowledging a physical, behavioral, or personal feature that causes embarrassment or shame
	3	Understanding ethical guidelines	Analyzing events, principles, and concepts, and working toward applying relevant theories to explain events or behavior	Identifying one's own values, thoughts, and beliefs	Testing how new information integrates with one's existing value system	Acknowledging that one's beliefs and values may significantly deviate from others
	4	Understanding the importance of theories models and frameworks	Acknowledging the influence of power and power issues in the relationship	Examining issues, even those that conflict with one's own value system	Reassessing (reformulating) one's own value and belief system in light of new information	Celebrating one's uniqueness as a person and as a professional
	5	Using new information as a building block for re-conceptualizing a principle	Analyzing the observed event and applying relevant theories to explain it	Analyzing own attitudes toward those different from himself/herself (cultural, age, political, educational, gender, socio-economic, etc.)	Connecting new learning with personal growth and development	Demonstrating open attitudes toward those who are different from one's self
	6	Generalizing elementary concepts into overarching principles	Applying a rational analysis to a conflicting issue or moral dilemma	Assessing the impact of one's own values, thoughts, and beliefs on his/her identity/practice	Accepting how values, thoughts, and beliefs impact one's ability to work appropriately with clients	Demonstrating a genuine self-acceptance as well as an acceptance of others
		Centered on content ←			→ Centered on the self	

Figure 2. Depiction of the content-process continuum on the horizontal axis and the superficial-analytical continuum on the vertical axis, with each matrix cell representing a magnitude of reflection.

Because each cell does not necessarily represent a discrete and definitive category, some journal entries will not fit conveniently into a single cell but instead may overlap one or more cells. For example, the statement “Because I failed at staying person-centered when working with my client, I’m afraid I’ll never be a good counselor” would be categorized as a Quadrant D statement in the 2 x 2 table. In this entry the student revealed doubts about her ability to be a good counselor after experiencing a performance failure. But when this statement is applied to the 5 x 6 matrix, the entry could be categorized as a Cell D5 statement because the student is connecting new learning with her own professional development. The entry may also be viewed as acknowledging a potential shortcoming that calls into question the student’s professional competence, possibly causing embarrassment; thus, it could also be identified as a Cell E2 statement. The exact placement of a reflective journal entry on the matrix is less important than the insights gained from examining, critiquing, and categorizing the entry. Through this exercise, students verbalize their thoughts—both to themselves and to the instructor—while analyzing and assessing their thinking processes.

Although an instructor may be tempted to use the matrix as a tool for evaluating students’ reflective skills, it is more useful as a common language for discussing and critiquing their critical thinking and reflective skills. The 30 reference points contained within the matrix also provide a means for plotting and analyzing reflective journal entries. Accordingly, a student’s reflective pattern can be tracked, critiqued, and refined.

We believe the successful practitioner can function effectively in each cell of the 5 x 6 matrix and can analyze both cognitive and emotional experiences concurrently. Furthermore, the professional must simultaneously perform these important skills. Consequently, each point on the content-process continuum and on the superficial-analytical continuum is valuable in the professional’s behavioral repertoire. The range and variety of points on the matrix demonstrates to students the importance of moving fluidly between analysis and emotional process.

Using the 5 x 6 Matrix as a Tool

The reflective journal is a versatile method for students to disclose their otherwise covert mental processes, and the 5 x 6 matrix is a tool for students and instructors to dissect and analyze these journal entries. This schema can help students to link theory, content, and experiences to their professional and personal practices. The matrix also aids in comparing earlier entries with more recent ones in order to track the development of reflective skills. Further, the matrix provides a forum and common language for discussing the student’s reflective journal entries, thus expanding and enhancing self-understanding and development of reflection. In addition

to helping track development of reflective skills, the matrix schema reinforces cognitive aspects of classroom activities.

When the instructor requires students to reflect on specific readings or classroom experiences, the matrix can be used to assess content knowledge and can provide useful data for diagnosing a student's strengths and weaknesses. Entries plotted on the matrix provide a graphic portrayal of a student's reflections. Thus, the student and instructor can use the matrix not only to review journal entries but also to reinforce accurate learning and to realign misconceptions of course content. Similarly, data from the matrix can be used by a student for self-analyzing connections between content and process as well as for monitoring movement between superficial and analytical reflections. It is this level of introspection that Boud, Keogh, and Walker (1985) believe is a key component of autonomous learning.

Although we recognize that the matrix can be used as an evaluative tool, we encourage measured and cautious movement in that direction. The real strength of the 30-cell matrix is that it provides a framework for students and instructors to discuss, critique, and analyze students' reflective journal entries. These and other potential applications—such as using the matrix as a rubric for assessing student learning, transfer of learning, and integration of cognition and affect—should undergo a controlled study. We are undertaking efforts to quantify the use of the matrix as an assessment instrument in the classroom and as a method for researching the dynamics of reflection. As an initial step in validating the matrix, samples of students' reflective journal assignments are currently being collected and efforts to establish inter-rater reliability are underway.

Conclusion

Educational programs are designed to develop in students the knowledge and skills necessary to become competent professionals. Experiential educators are especially concerned with drawing purposeful learning from active instructional encounters. Development of knowledge and skills includes tacit internal processes that are often difficult for an instructor to discern and measure. Consequently, instructors may require students to journal about a course, an experience, a personal value, or a belief. However, the literature on reflective journals reveals that, unless the instructor directs the reflective process in an educationally meaningful way, students often view journaling as busywork. When using the matrix to connect a given learning experience to journal writing, reflective journaling can become a meaningful professional and personal development activity. Reflective journals used in this way create effective learning conditions that can result in the types of meaningful or purposive learning that was first put forth by Dewey (1938) and refined by adult education theorist Kolb (1984). As Dewey stated (1933), "The function of reflective

thought is to transfer a situation in which there is experienced obscurity, doubt, conflict, disturbance of some sort, into a situation that is clear, coherent, settled and harmonious” (pp. 100–101).

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