# Reflective Thinking and Journal Writing: Examining Student Teachers' Perceptions of Preferred Reflective Modality, Journal Writing Outcomes, and Journal Structure

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## Abstract

*Journal writing is generally required of student teachers; however, there is a void in career and technical education research regarding this activity. The purpose of this study was to examine student teachers' journal writing experiences to obtain insight into the process of developing reflective practitioners. The study drew on the work of Dewey and Schön to build a theoretical framework in support of journal writing as a means to acquire and improve reflective thinking. The accessible sample consisted of three consecutive cohorts of student teachers (N = 44) in agricultural education at a Midwestern university who completed an 11-week student teaching experience. The student teachers' preferred reflective modality was verbal reflection, self-reflection, and written reflection. Journal structure in the form of a prompt was not found to significantly impact journal writing outcomes. A "like/dislike" phenomenon associated with journal writing and reflection was discovered. Student teachers perceived that journal writing is a personal and unique endeavor.*

## Introduction

The notion of the *reflective practitioner* has been embraced as a common goal of teacher education programs at universities across the United States (Goldsby & Cozza, 1998; Korthagen & Vasalos, 2005; Risko, Roskos, & Vukelich, 2002). The literature has focused on the nature and practice of reflection, and scholars have suggested that reflective thinking is the approach *par excellence* for the growth and development of preservice teachers (Teekman, 2000). Previous research (Berliner, 1986; Russell & Munby, 1991) advocated that preservice teachers should become reflective practitioners to develop expertise in the professional practice of teaching. Banier and Cantrell (1993) suggested that reflective thinking provides the foundation for developing "the ability to assess situations and to make thoughtful rational decisions" (p. 65). Risko et al. (2002) believed that:

> … requesting future teachers to engage in reflective thought within the context of their coursework provides them with an opportunity to generate connections

between theory and practice, come to deeper understandings about their personal beliefs while adopting new perspectives, and learn how to use reflective inquiry to inform their instructional decisions. (p. 149)

Moreover, the Interstate New Teacher Assessment and Support Consortium (INTASC, 1992) outlined a common core of teaching knowledge and skills that should be acquired by all new teachers. Principle nine states that, "The teacher is a reflective practitioner who continually evaluates the effects of his/her choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally" (p. 31). The INTASC principles were drafted by teachers, teacher educators, and state agency officials, and represent a shared view that reflection is an important skill to be attained by preservice teachers.

In support of developing the reflective practitioner, journal writing has become the most common technique for assisting preservice teachers in the development of this skill (Bain, Mills, Ballantyne, & Packer, 2002; Pedro, 2005; Risko et al., 2002). Previous research suggested that journal writing was a helpful tool to encourage reflective activity in students (Dinkelman, 2000; Goldsby & Cozza, 1998), and that reflective thinking skills can be taught and learned (Francis, 1995; Paterson, 1995). However, Bain et al. (2002) cautioned that "little is known about the processes and principles that need to be applied if the student journal is to become a tool for learning rather than a simple record of events" (p.171). Despite the popularity and purported benefits of reflective thinking and journal writing, little is known about these activities in career and technical education. Therefore, the purpose of this study was to examine the journal writing experiences of student teachers in agricultural education to obtain insight into the process of developing reflective practitioners.

## Literature Review

To date, there is only anecdotal evidence that pertains to reflective thinking and journal writing in the context of teacher development in career and technical education. Because there is a scarcity of research in career and technical education, the literature review was derived from other disciplines. The review focused on the variables of interest that were germane to the objectives of the study, and is organized around the topics of reflective modalities, benefits of journal writing, barriers to journal writing, and strategies for journal writing.

The literature identified different modalities that are utilized by individuals who engage in reflective thinking (Bakhtin, 1981; Cowan & Westwood, 2006; Pedro, 2005; Webb, 1999), and are generally categorized as written reflection, self-reflection, and verbal reflection. Many studies involving reflective thinking in education have focused on use of the written word (e.g., journal writing) as a common modality. For example, preservice teachers engage in field experiences and

then provide a written account of their observations and interactions, and the learning they experienced. Accordingly, preservice teachers utilize writing to create their own concepts of teaching, unravel the confusion that they encounter during their field experiences and student teaching, and process experiences that contribute to their professional development (Pedro, 2005; Spilkova, 2001). From a differing perspective, Cowan and Westwood (2006) concluded that some individuals prefer to self-reflect, and they questioned why journal writing is necessary if an individual's preferred reflective modality was meeting their needs. However, if little feedback or conversation occurs, a reflective modality that only includes a written journal or self-reflection is ineffective (Webb, 1999). Without verbal reflection, preservice teachers have no impetus to challenge their own thinking and traditional norms of teaching. In contrast, undertaking reflective thinking as a collegial activity can assist in overcoming the isolation of self-reflection. Bakhtin (1981) contended that verbal reflection can influence the building of argumentation, the analysis of different perspectives, and the understanding of relationships between personal beliefs and the beliefs of other reflective partners. Moreover, other researchers (Grushka, McLeod, & Reynolds, 2005; Hill, 2005; Parsons & Stephenson, 2005) reported that verbal reflection encouraged and supported the cognitive growth and affective development of preservice students, and was found to facilitate a deeper thinking about field experiences.

Previous research provided support for journal writing as a helpful tool to encourage reflective thinking in preservice teachers (Bain et al., 2002; Button & Davies, 1996; Dinkelman, 2000; Goldsby & Cozza, 1998). For example, students attempted to make linkages between real world practices and university course content as a result of their journal writing when involved with field experiences (Lashley & Wittstadt, 1993). Accordingly, journal writing can assist in developing critical thinking skills (Callister, 1993; Dyment & O'Connell, 2003) when an individual utilizes the writing process to analyze challenging classroom issues and to determine alternative solutions to those problems. Additional benefits of journal writing include the development of observational skills (Dyment & O'Connell, 2003; Heinrich, 1992), and the development of self-evaluative skills by revisiting prior journal entries in an effort to track progress (Patton et al., 1997). Journal writing has been reported to increase self-esteem (Heinrich, 1992), reduce stress, and release tension when an individual writes about challenging experiences (Callister, 1993; Dyment & O'Connell, 2003; Hill, 2005).

The literature identified the availability of time as a major factor for enhancing the reflective thinking of journal writers (Cowan & Westwood, 2006; Hill, 2005; Moon, 1999b; Pultorak, 1993). Difficulty in setting aside time for journal writing when more immediate challenges need attention is a common dilemma faced by student teachers. This barrier is no surprise as student teachers engage in multiple experiences that are time consuming (e.g., learning to teach, enacting classroom

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management practices, grading assignments). As a result of these demands, student teachers are often concerned about being prepared for their classroom teaching, and may feel as if they have little time to think analytically about their practice (Lee & Loughran, 2000).

Another barrier to journal writing involves risk-taking (Moon, 1999a). Cowan and Westwood (2006) asserted that there are two types of risks involved with journal writing. The first involves sharing one's thoughts and ideas in the journal with someone who might be a relative stranger, or someone who has evaluative responsibilities. Typically, student teachers record their reflections in a journal, and then the entries are shared with the university supervisors. This process assumes that the student teacher is being transparent and that a certain level of trust has been developed between the student teacher and the university supervisor (Bain et al., 2002). Without a trusting relationship, it is possible that student teachers will write what they know the university supervisors hope to read (Cowan & Westwood, 2006). The second type of risk that Cowan and Westwood (2006) identified is the personal risk taken by the journal writer. For example, student teachers might question how far to challenge themselves by trying a new teaching strategy in the classroom, and then must cope with what they discovered about themselves during the risk-taking process. Writing about such a risk might possibly detour the transparent writing style expected in reflective journals.

Previous research identified several other barriers to journal writing. Moon (1999a) suggested that some journal writers found the writing process to be a struggle, and was an "alien activity" (p. 89). Cowan and Westwood (2006) posited that some individuals might be more comfortable reflecting with someone else or by "writing a journal in my head" (p. 67). Therefore, journal writing in itself might be a barrier to student teachers who prefer verbal or self-reflective modalities.

Strategies utilized to improve reflective practice through journal writing generally focus on structure and feedback, and the notion that preservice teachers can and should be taught to reflect (Bain et al., 2002; Russell, 2005; Spalding & Wilson, 2002). Spalding and Wilson (2002) asserted that structured and unstructured opportunities for journal writing should be provided to student teachers. Furthermore, student teachers reported that feedback on their journal writing helped them to become more reflective, and that the feedback helped to create and sustain their relationships with their university supervisors. Bain et al. (2003) reported that feedback focused on the level of reflection attained was more effective in bringing about improvement in journal writing than feedback in regard to teaching issues. Further, the study concluded that feedback designed to challenge the student teacher and encourage consideration of alternative perspectives was more likely to advance journal writing as a reflective tool, rather than affirmation or a low level of challenging comments presented in feedback. In contrast, some researchers argued that learning to reflect does not follow a set of specific steps that can be taught but

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rather is a process that develops over time (Baird, Fensham, Gunstone, & White, 1991; Ross, 1989). Additionally, previous research has suggested that supplying specific rubrics and providing feedback to journal writing was impositional, restricted students' critical and creative thinking, and resulted in students feeling a loss of ownership of their own ideas (Pailliotet, 1997; Wolf, Mieras, & Carey, 1996).

## Theoretical Framework

This study drew on the work of Dewey and Schön to build a theoretical framework in support of journal writing as a means to develop reflective thinking. John Dewey is acknowledged as the founder of the concept of reflective thinking, and in *How We Think* (Dewey, 1933), he theorized *thought* as consisting of two different mental processes. One thought process was random and uncontrolled, while the other process was more focused and disciplined. Dewey theorized the latter thought process as reflective thinking, and suggested that the purpose of this thought pattern was to "…transform a situation in which there is experienced obscurity, doubt, conflict, disturbance of some sort, into a situation that is clear, coherent, settled, harmonious" (Dewey, 1933, p. 101-102). Dewey (1933) defined reflective thought as the "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (p. 9). Later, Dewey (1938) argued that education is "reconstruction or reorganization of experience which adds to the meaning of experience, and which increases [one's] ability to direct the course of subsequent experience" (p. 74). In summary, Dewey suggested that reflective thinking was a systematic and disciplined thought process, with its roots in scientific inquiry. He proposed that sequential logic included consideration for the consequences of the decision, and was influenced by prior experiences.

While Dewey focused on the rationality of reflective thinking, Schön (1983, 1987) emphasized intuition and introduced the dimension of time during which reflective thinking takes place. In *The Reflective Practitioner* (1983) and *Educating the Reflective Practitioner* (1987), Schön introduced new forms of investigation into teacher thinking. He suggested that *knowing-in-action* referred to tacit knowledge that is revealed in a person's actions. Knowing-in-action is generally sufficient to carry out required tasks without thinking. However, when something unexpected occurs, Schön (1983) theorized that teachers employed *reflection-in-action* while they were involved with the action. For example, a teacher prepares for a class by developing an instructional plan that outlines sequential teaching and learning activities and an estimated time schedule. However, during the class period, the teacher realizes that several students do not understand a key concept. Accordingly, the teacher proceeds to set the instructional plan aside and reteaches the concept in a different manner to provide more clarity. In this scenario involving reflection-in-action, the teacher becomes a researcher in the practical context. Further, Schön

theorized that *reflection-on-action* occurred after the experience had taken place, and infers that the teacher would reflect about the experience at a later time, possibly during a preparation period or while returning home from school.

Reflective thinking theory (Dewey, 1933, 1938; Schön, 1983, 1987), therefore, suggests that teachers utilize a specific mental process to manage unexpected events. It also suggests that reflection-on-action through the use of journal writing might be an appropriate strategy for developing reflective practitioners. Therefore, the opportunity to investigate journal writing and ultimately reflective thinking through the use of a journal prompt was appealing in this study. How might this type of structure influence the journal writing process? However, there had been no apparent studies that investigated reflective thinking and journal writing with respect to teacher preparation in career and technical education. Consequently, this exploratory study was necessary to better understand the role of journal writing during the student teaching experience.

## Purpose and Objectives

The purpose of this study was to examine the journal writing experience of student teachers in agricultural education to obtain insight into the process of developing reflective practitioners. Further, journal writing structure in the form of a journal prompt was included as a variable during the student teaching experience in an effort to compare the perceptions of student teachers. The following research objectives were developed to achieve the purpose: (a) determine student teachers' preferred reflective modality, (b) compare student teachers' perceptions regarding *journal writing outcomes* (JWO) by those who did and did not receive journal prompts, and (c) compare student teachers' perceptions regarding the benefits of journal writing, the barriers to journal writing, and suggestions for the journal writing component of student teaching by those who did and did not receive journal prompts. The following null hypothesis was, therefore, formulated and tested in the study:

> Ho:   There are no statistically significant differences between those student teachers who received and those student teachers who did not receive journal prompts on journal writing outcomes.

## Methodology

This study employed a survey research design (Gall, Gall, & Borg, 2003) that was supplemented by a content analysis of open-ended questions (Creswell, 2003). The accessible sample consisted of three consecutive cohorts of student teachers ($N = 44$) in agricultural education at a Midwestern university. The participants completed an 11-week student teaching experience during the spring semester in 2004, 2005, and 2006. Based on demographic data and anecdotal experience involving five student teaching cohorts prior to this study, it was determined that the participants

were a representative time and place sample of the population (Oliver & Hinkle, 1982). Therefore, the target population was all student teachers in agricultural education at a Midwestern university.

All three cohorts of student teachers submitted a weekly reflective journal to their university supervisors during the 11-week student teaching experience. Students in cohort one ($n = 21$) and cohort two ($n = 5$) had the option of submitting their weekly reflective journal in hardcopy format by mail or electronically by e-mail. The third cohort ($n = 18$) of student teachers submitted their weekly reflective journal electronically by e-mail. Twenty-three of the student teachers received a weekly journal prompt, and this group consisted of five student teachers from cohort one and all of the student teachers in cohort three ($n = 18$). This group was instructed to address the journal prompt, and they were also encouraged to journal about other student teaching experiences. Twenty-one of the students did not receive a weekly journal prompt and they were instructed to journal as they had been doing in other professional education courses. The Minnesota Standards of Effective Practice served as the source for the journal prompts. Mandated by the State legislature, candidates for teacher licensure must show evidence that they are proficient in the 10 areas identified in the Standards of Effective Practice (see Table 1).

A journal prompt that represented each of the 10 areas in the Standards of Effective Practice was developed by the researchers (see Table 2). The journal prompt for the 11th week of student teaching was an overall reflective summary. Student teachers responded to both a cognitive and an affective aspect of the weekly journal prompt. The order in which each of the Standards of Effective Practice was selected as a journal prompt was based on a typical progression of experiences that would provide student teachers with the necessary context to write reflectively about the prompt.

The data collection instrument was developed by the researchers based on the reflective thinking and journal writing literature (Bain et al., 2002; Colton & Sparks-Langer, 1993; Dyment & O'Connell, 2003; Moon, 1999a). The instrument was reviewed for face and content validity by an expert panel consisting of faculty and graduate students at the Midwestern university. Appropriate changes pertaining to clarity and formatting of the questionnaire were made based upon the recommendations of the expert panel members. The instrument was comprised of two scales; one measured preferred reflective modality and the other measured JWO. To probe for more detail, another section of the instrument consisted of three open-ended questions that asked student teachers to identify the most important benefits to journal writing, the barriers to journal writing, and suggestions to improve the journal writing component of student teaching. The final section of the data collection instrument asked participants to provide demographic information.

Table 1
*Minnesota Standards of Effective Practice*

| Standard | Description |
| --- | --- |
| 1 Subject Matter | The teacher understands the central concepts, tools of inquiry, and structures of the discipline(s) he or she teaches and can create learning experiences that make these aspects of subject matter meaningful for students. |
| 2 Student Learning | The teacher understands how students learn and develop, and can provide learning opportunities that support their intellectual, social, and personal development. |
| 3 Diverse Learners | The teacher understands how students differ in their approaches to learning and creates instructional opportunities that are adapted to learners from diverse cultural backgrounds and those with exceptionalities. |
| 4 Instructional Strategies | The teacher understands and uses a variety of instructional strategies to encourage students' development of critical thinking, problem solving, and performance skills. |
| 5 Learning Environment | The teacher uses an understanding of individual and group motivation and behavior to create a learning environment that encourages positive social interaction, active engagement in learning, and self-motivation. |
| 6 Communication | The teacher uses knowledge of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the classroom. |
| 7 Planning Instruction | The teacher plans and manages instruction based upon knowledge of subject matter, students, the community, and curriculum goals. |
| 8 Assessment | The teacher understands and uses formal and informal assessment strategies to evaluate and ensure the continuous intellectual, social, and physical development of the learner. |
| 9 Reflection & Professional Development | The teacher is a reflective practitioner who continually evaluates the effects of her/his choices and actions on others (students, parents, and other professionals in the learning community) and who actively seeks out opportunities to grow professionally. |
| 10 Collaboration | The teacher communicates and interacts with parents/guardians, families, school colleagues, and the community to support students' learning and well-being. |

Table 2

*Journal Prompts Based on Minnesota Standards of Effective Practice*

| Week | Standard | Prompt | |
| --- | --- | --- | --- |
| | | Cognitive | Affective |
| 1 | 4<br>Instructional<br>Strategies | As you observe the classes taught by your cooperating teacher and other teachers in the school, what instructional strategies are being used effectively? | How does it feel to finally be at the school where you will do your student teaching? |
| 2 | 5<br>Learning<br>Environment | What techniques are you finding that motivate students? | How do you feel when your classroom management strategy does not work and students continue to behave inappropriately? |
| 3 | 2<br>Student<br>Learning | How have you utilized students' prior knowledge and/or previous experiences to encourage student learning? | How do you feel when students struggle with concepts you are teaching them? |
| 4 | 1<br>Subject<br>Matter | How have you attempted to make the subject matter meaningful for students? | How do you feel taking on the role of an english, math, or science teacher as you incorporate these concepts into your teaching? |
| 5 | 6<br>Communication | Describe a verbal and/or nonverbal communication technique you have successfully utilized. | How did you feel when you used an effective listening technique with a student? |
| 6 | 3<br>Diverse<br>Learners | What have you found to be successful in working with special education and/or 504 students? | What was your reaction to the diversity of students taking agricultural education classes? |

Table 2 *(continued)*

| | | Prompt | |
|---|---|---|---|
| Week | Standard | Cognitive | Affective |
| 7 | 7<br>Planning Instruction | The agricultural education curriculum is broad and multi-faceted. How do you overcome the obstacle of teaching a content area that you are not as familiar with? | How does it feel to be teaching a content area that you are not as familiar with? |
| 8 | 8<br>Assessment | Describe a conversation you had with a parent(s) of a student who has been struggling with your class. How did the parents react? | How did you feel handling the situation with the parent(s)? |
| 9 | 9<br>Reflection & Professional Development | A more advanced form of reflection occurs while teaching, which is called reflection-in-action. How have you progressed in your skill at making changes to your instructional plan while teaching the class? | Do you value reflective thinking? |
| 10 | 10<br>Collaboration | What factors in students' outside-of-school environment do you think have most impacted learning in your classroom? | How have these environmental issues affected how you teach? |

The details regarding the two scales include:

*Preferred Reflective Modality.* This measure asked student teachers to rank-order their preferred reflective modality from among three choices: (a) self-reflection, (b) verbal reflection, and (c) written reflection.

*Journal Writing Outcomes.* Participants were asked to provide their perceptions of JWO by responding to five items. A 4-point Likert-type scale (1 = *strongly disagree*, 2 = *somewhat disagree*, 3 = *somewhat agree*, 4 = *strongly agree*) was utilized to capture responses from the student teachers. The mean values for each of the five items were averaged to represent a JWO score for each participant. The

instrument had an internal consistency reliability (Cronbach's coefficient alpha) estimate of .76 (Litwin, 1995).

The questionnaire was administered at the conclusion of the student teaching experience during a two-week time period when students were on campus participating in concluding course activities. Forty-one of the 44 student teachers responded to the questionnaire, which resulted in a 93.2% response rate. Of the 41 respondents, 21 received a journal prompt and 20 did not. Nonresponse error was not considered a serious threat to the validity of the study due to the high response rate (Gall et al., 2003).

The data were analyzed using the Statistical Packages for the Social Sciences, version 16.0 (SPSS, 2007). For objective 1, categorical data were reported as frequencies. For objective 2, interval data were reported as means and standard deviations. Independent samples *t*-tests were conducted to test the null hypothesis. Effect sizes were calculated and interpreted using Cohen's *d* (Cohen, 1988) coefficients and indices: small effect size ($d = .20$ to .49), medium effect size ($d = .50$ to .79), and large effect size ($d = \geq .80$). An alpha level of .05 was established a priori for the significance tests.

To accomplish objective 3, mixed forms of content analysis were employed. Empirical content analysis and hermeneutic content analysis (Bos & Tarnai, 1999; Ritsert, 1972) were used to analyze the text that student teachers provided in response to the three open-ended questions. The use of both quantitative and qualitative procedures allowed the researchers to move beyond the *manifest content* (Holsti, 1969) and to probe and infer from the latent content embedded in the student teachers' responses. Reflexivity was enhanced by the professional experiences of the two researchers who analyzed the text. One researcher had served as both a cooperating teacher and a university supervisor of student teachers, while the other researcher had recently completed a student teaching experience. Each researcher read independently the student teachers' answers for each question and (a) assigned coding units (themes) to the text, (b) organized the coding units into categories, (c) gave each category a name, and (d) assigned frequencies to each category. While analyzing the data during this process, the constant comparative method (Merriam, 2001) was utilized to organize, combine, and divide categories. After individually analyzing the text pertaining to the benefits of journal writing, the researchers met to establish trustworthiness (Merriam, 2001). Hermeneutic content analysis procedures were followed as discussion centered on the interpretation of meaning behind the text and the rationale for category formation. Initially, 84% of the categories were classified similarly by the two raters. The researchers resolved their differences by mutual consent after learning more about the boundaries and the units that were coded. An intersubjectively verifiable procedure (Bos & Tarnai, 1999) was used to reach consensus on category formation pertaining to student teachers' perceptions of

barriers to journal writing and suggestions for the journal writing component of student teaching.

# Findings

Selected demographics of the participants indicated that the average age of student teachers was 22.5 years, and there were more females *(n = 23, 56.1%)* than males (*n* = 18, 43.9%) who responded to the questionnaire. The first objective of the study was to determine the student teachers' preferred reflective modality. As shown in Table 3, the majority of student teachers (*n* = 23, 56.1%) preferred to reflect verbally with someone, while reflecting by writing (*n* = 6, 14.6%) was the least preferred reflective modality. Additionally, the ranking of preferred reflective modality was similar for those student teachers who received and those student teachers who did not receive a journal prompt. Potential differences in preferred reflective modality between the student teacher groups were tested using chi-square analysis. A statistically significant difference in verbal reflection, self-reflection, and written reflection was not found between the two groups of student teachers, $\chi^2(2, N = 41) = 1.02$, p = .60.

Table 3
*Preferred Reflective Modality of Student Teachers*

| | All student teachers | | Journal structure | | | |
| | | | Prompt | | Non-prompt | |
| Reflective modality | *f* | % | *f* | % | *f* | % |
|---|---|---|---|---|---|---|
| Verbal reflection | 23 | 56.1 | 12 | 57.1 | 11 | 55.0 |
| Self-reflection | 12 | 29.3 | 7 | 33.3 | 5 | 25.0 |
| Written reflection | 6 | 14.6 | 2 | 9.5 | 4 | 20.0 |

Objective two was to compare student teachers' perceptions regarding JWO by those who received with those who did not receive journal prompts. As illustrated in Table 4, student teachers who received journal prompts had a JWO mean score of 2.86 (*SD* = .59), while the JWO mean score for student teachers who did not receive journal prompts was 2.83 (*SD* = .52). Also, student teachers who received a journal prompt had higher mean scores than did those who did not receive a journal prompt for four of the five items represented by the JWO construct. Independent samples *t*-tests were conducted and a statistically significant difference was found between the two groups of student teachers (*M* prompt = 2.43, *M* non-prompt = 2.95) on only one of the

sub-construct items: my ability to write in a deeper, more reflective style improved during student teaching. As indicated in Table 4, this sub-construct had the largest effect size ($d = .74$, medium). Based on the *p*-value, the null hypothesis failed to be rejected and, therefore, no statistically significant difference was found between those student teachers who received and those student teachers who did not receive journal prompts on JWO.

Table 4

*Independent Samples T-tests Comparing Student Teachers' Perceived Journal Writing Outcomes*

| JWO and construct items | Prompt ($n = 21$) | | Non-prompt ($n = 20$) | | *t* | *p* | Cohen's *d* |
|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | | | |
| Journal writing outcomes | 2.86 | .59 | 2.83 | .52 | .16 | .88 | .06 |
| Writing is a form of communication that I am comfortable with. | 3.38 | .74 | 3.10 | .72 | 1.23 | .23 | .39 |
| Writing in my journal helped me to reflect on what I was learning during student teaching. | 3.10 | .70 | 3.10 | .72 | -.02 | .98 | .00 |
| Journal writing enhanced my teaching skills. | 2.81 | .81 | 2.60 | .75 | .85 | .40 | .28 |
| Writing in my journal helped to relieve stress. | 2.57 | .81 | 2.40 | 1.00 | .61 | .55 | .19 |
| My ability to write in a deeper, more reflective style improved during student teaching. | 2.43 | .75 | 2.95 | .69 | -2.33 | .03* | .74 |

*Note.* 4-point scale (1 = *strongly disagree*, 2 = *somewhat disagree*, 3 = *somewhat agree*, 4 = *strongly agree*)
*$p < .05$

The third objective of the study focused on comparing student teachers' perceptions regarding the benefits of journal writing, the barriers to journal writing,

and suggestions for the journal writing component of student teaching by those who received with those who did not receive journal prompts. The responses to the open-ended questions were coded and organized into categories, and the frequency analysis is presented in Tables 5, 6, and 7. Thirty-nine student teachers ($n_{prompt} = 21$, $n_{non-prompt} = 18$) provided benefits of journal writing, and their responses are displayed in Table 5.

The three benefits most frequently perceived by student teachers were reflective thinking ($f = 16$, 28.6%), pedagogical problem solving ($f = 13$, 23.2%), and record of happenings ($f = 10$, 17.9%). Comparing the responses of student teachers who received with those who did not receive journal prompts revealed a similar rank-order of students' perceptions. The major difference was that reflective thinking ($f = 12$, 35.3%) emerged as the most frequent response by student teachers who received journal prompts, while pedagogical problem solving ($f = 7$, 31.8%) was noted as the most frequent response by student teachers who did not receive journal prompts.

Table 5
*Benefits of Journal Writing as Perceived by Student Teachers*

|  | All student teachers | | Journal structure | | | |
|  |  |  | Prompt | | Non-prompt | |
| Category | $f$ | % | $f$ | % | $f$ | % |
|---|---|---|---|---|---|---|
| Reflective thinking | 16 | 28.6 | 12 | 35.3 | 4 | 18.2 |
| Pedagogical problem solving | 13 | 23.2 | 6 | 17.6 | 7 | 31.8 |
| Record of happenings | 10 | 17.9 | 6 | 17.6 | 4 | 18.2 |
| Express feelings and relieve stress | 7 | 12.5 | 4 | 11.8 | 3 | 13.6 |
| Awareness of professional growth | 6 | 10.7 | 4 | 11.8 | 2 | 9.1 |
| Communication with university supervisor | 3 | 5.4 | 1 | 2.9 | 2 | 9.1 |
| Daily routine | 1 | 1.8 | 1 | 2.9 | 0 | 0.0 |

To provide a better understanding of the meaning associated with the major categories of journal writing benefits, representative responses are listed for the five most frequent categories. The most frequently mentioned benefit was reflective thinking; the student teachers recognized the impact that journal writing had on developing this skill. One student teacher noted that journal writing "forced me to

actually sit down and think about what I was doing when I was student teaching," while another stated that "it required reflection, which is good." Eight of the 16 responses in the category of reflective thinking noted that having to do journal writing "forced" them to reflect, and yet student teachers identified reflective thinking as a benefit.

Pedagogical problem solving was identified as the second most frequent benefit of journal writing and an example response was, "The most important benefit was to myself by writing in a journal. I was able to process things that had occurred and, in many cases, I solved the questions I had by taking the time to do this." Another student teacher responded, "It allowed me to reflect on what was successful and what wasn't. Then I could think about what I would do to improve the success of the lessons."

The third most frequent benefit was that journal writing served as a record of happenings. A common response was that writing in a journal helped "create a written record of what happened," and a student teacher offered that his/her journal was a "place to write down experiences, so I can go back and remember what happened." The fourth most common benefit focused on journal writing as a means to express feelings and relieve stress. For example, student teachers responded that "My journal was also a 'person' to express my feelings to," and that journal writing helped them to "reflect on what I enjoyed during teaching."

Further, the student teachers indicated that their journals were "somewhere to complain about things," and helped to "relieve stress." Finally, journal writing helped the student teachers become aware of their professional growth as noted by comments such as, "It was interesting to look back at the beginning of my student teaching experience and see how I have grown and developed as a teacher," and "Allowed me to look back at how much I developed through the experience."

Forty student teachers ($n_{prompt} = 21$, $n_{non\text{-}prompt} = 19$) responded to the opened-ended question that asked for the identification of barriers to journal writing (see Table 6). The three most frequent barriers perceived by student teachers were finding time to journal ($f = 30$, 56.6%), other priorities ($f = 11$, 20.8%), and identifying something to write about ($f = 6$, 11.3%). The rank-order of barriers perceived by those student teachers who received and those student teachers who did not receive journal prompts was the same.

Student responses that are representative of the four most frequent categories of barriers to journal writing are provided to better understand the meaning associated with each category. The most frequent barrier was finding time to journal. Student teachers expressed frustration with journal writing as they perceived this activity to be "a burden on top of other things" and that they were "swamped and had no time." Other priorities interfered with journal writing, which was the second most frequent barrier to journal writing. Student teachers noted that "time spent journaling

took away from lesson planning" and that they had "bigger priorities, such as the students themselves."

Table 6
*Barriers to Journal Writing as Perceived by Student Teachers*

| Category | All student teachers | | Journal structure | | | |
| | | | Prompt | | Non-prompt | |
| | *f* | % | *f* | % | *f* | % |
|---|---|---|---|---|---|---|
| Finding time to journal | 30 | 55.6 | 18 | 60.0 | 12 | 50.0 |
| Other priorities | 12 | 22.2 | 6 | 20.0 | 6 | 25.0 |
| Deciding content to write about | 6 | 11.1 | 2 | 6.7 | 4 | 16.7 |
| Writing was not preferred reflective modality | 4 | 7.4 | 2 | 6.7 | 2 | 8.3 |
| Confidentiality | 2 | 3.7 | 2 | 6.7 | 0 | 0.0 |

Four of the 12 responses in the category of other priorities identified the physical demands of student teaching as a barrier. One respondent commented that "I tried to make sure I did my journals when I got home every day but I was so tired by then I usually went home and fell asleep. This was the most exhausting thing I have ever had to do."

The third most frequently perceived barrier to journal writing was deciding on the content to write about. For example, a student teacher responded that "some weeks were slower/quieter than others; other weeks I could have written a book." Another student teacher indicated that he/she "had trouble deciding what to write in my journal. I tended to write a summary of my daily events, rather than a reflection."

The fourth major barrier to journal writing focused on writing not being a preferred reflective modality and was evident by their comments. One student teacher indicated, "I'm not a journaler and find it difficult to do on my own. I'm such an extrovert that I would journal more consistently if I journaled at the same time others were journaling. I'd rather reflect verbally by discussing it with someone." Another student teacher reported, "I had a hard time writing down my thoughts from the day. I would rather have used a tape recorder and verbally express my feelings."

Thirty-seven student teachers ($n_{prompt} = 20$, $n_{non-prompt} = 17$) responded to the opened-ended question asking for suggestions to strengthen the journal writing component of student teaching (see Table 7). The most common responses were that journal writing went well ($f = 13$, 27.7%), and that less journal writing structure was desired ($f = 7$, 14.9%). Comparing student teachers who received with those who did not receive journal prompts revealed some differences in the rank-order of the responses. The most noticeable differences pertained to the category of less journal writing structure ($f_{prompt} = 6$, 21.4%; $f_{non-prompt} = 1$, 5.3%), and the category of more journal writing clarity ($f_{prompt} = 2$, 7.1%; $f_{non-prompt} = 4$, 21.1%).

Table 7
*Suggestions for Journal Writing as Perceived by Student Teachers*

|  | All student teachers | | Journal structure | | | |
|  | | | Prompt | | Non-prompt | |
| Category | *f* | % | *f* | % | *f* | % |
|---|---|---|---|---|---|---|
| Journal writing went well | 13 | 27.7 | 7 | 25.0 | 6 | 31.6 |
| Less journal writing structure | 7 | 14.9 | 6 | 21.4 | 1 | 5.3 |
| More journal writing structure | 6 | 12.8 | 3 | 10.7 | 3 | 15.8 |
| More journal writing clarity | 6 | 12.8 | 2 | 7.1 | 4 | 21.1 |
| Accommodate different reflective modalities | 4 | 8.5 | 2 | 7.1 | 2 | 10.5 |
| Continue journal prompts | 4 | 8.5 | 4 | 14.3 | -- | -- |
| Less emphasis on journal writing | 4 | 6.4 | 2 | 7.1 | 2 | 10.5 |
| Provide feedback | 3 | 6.4 | 2 | 7.1 | 1 | 5.3 |

To provide a better understanding of the meaning associated with suggestions for journal writing, representative responses of the four most frequent categories are reported. Overall, the student teachers indicated that the journal writing experience was good and they liked to journal. A representative response from a student teacher was that they "Thought it was fine; very helpful."

The second most frequent category of suggestions was to have less journal writing structure. The suggestions in this category focused primarily on allowing greater flexibility regarding when the weekly reflections should be completed and submitted, how many days per week to be included in the weekly reflection, and journal writing should be "highly encouraged but don't make mandatory." Further, two student teachers who received journal prompts felt distracted from what they may have offered for reflective writing. For example, one respondent noted that "I feel that many times the questions of the week distracted me from issues I really wanted to focus on. I would make journaling more free form so that thoughts and ideas can easily be expressed."

In contrast, other respondents indicated that they preferred more journal writing structure and this was the third most frequent suggestion. One student teacher boldly proclaimed, "Make them due weekly!! Do not allow slacking, it only encourages procrastination." Another response was, "I feel that it is a good area but maybe should be looked at in a different manner. I would like to have a more standardized and specific task when it comes to journaling."

The fourth most frequent suggestion centered on providing more clarity about journal writing. Student teachers noted that "better instructions" and "strategies for journaling activities" should have been provided. Another response indicated that it would be valuable to "explain what the purpose of the journal is at the beginning of the student teaching experience."

## Conclusions, Implications, and Recommendations

The purpose of this study was to examine the journal writing experiences of student teachers to obtain insight into the process of developing reflective practitioners. Further, journal writing structure in the form of a prompt was included as a variable during the student teaching experience in an effort to compare the perceptions of student teachers. Reflective thinking theory (Dewey, 1933, 1938; Schön, 1983, 1987) suggested that teachers utilize a specific mental process to manage unexpected events, and that reflection-on-action through the use of journal writing might be an appropriate strategy for developing reflective practitioners. However, previous research regarding teacher preparation in career and technical education had not investigated reflective thinking and journal writing. Consequently, this exploratory study was necessary to better understand the role of journal writing during the student teaching experience.

This study found that student teachers provided conflicting perceptions regarding journal writing and reflective thinking; this finding was identified as a "like/dislike" phenomenon. The three cohorts of student teachers were somewhat comfortable with writing as a form of communication and many perceived that journal writing went well. Participants confirmed previous research (Bain et al.,

2002; Dinkelman, 2000; Goldsby & Cozza, 1998) when they identified reflective thinking as the most frequent benefit of journal writing. One-half of the student teachers noted that having to write in a journal "forced" them to reflect. Student teachers identified pedagogical problem solving as the second most frequent benefit of journaling, lending support for the development of critical thinking skills through the writing process (Callister, 1993; Dyment & O'Connell, 2003). In contrast, writing as a form of reflection was the least preferred modality identified by the student teachers. Verbal reflection was preferred four times more often than written reflection, and self-reflection was twice as preferred as written reflection. Finding time to journal (Cowan & Westwood, 2006; Hill, 2005; Moon, 1999b; Pultorak, 1993) and dealing with other priorities during student teaching were identified as the major barriers to journal writing. Student teachers focused their time and efforts on teaching, and found teaching to be mentally and physically exhausting. Accordingly, journal writing was perceived as being more of a chore than an embraced routine. It appears that the three cohorts of student teachers *liked* and *disliked* aspects of journal writing and reflection. This is a new finding with respect to teacher preparation in career and technical education.

It was concluded that the rank-order of student teachers' preferred reflective modality is verbal reflection, self-reflection, and written reflection. Interestingly, over one-half of the student teachers preferred to reflect through a verbal modality and, therefore, were likely to experience the benefits of verbal reflection reported by previous research (Bakhtin, 1981; Grushka et al., 2005; Hill, 2005; Parsons & Stephenson, 2005). While student teachers preferred verbal reflection, this study did not inquire with whom student teachers prefer to reflect verbally. Possibly, some student teachers prefer to reflect verbally with another individual, while others prefer to reflect with a group of individuals. Further, the literature (Bain et al., 2002) indicated that trust is a critical element in developing a relationship. Therefore, it is recommended that future studies explore trust between preferred partners and student teachers regarding verbal reflection. It is also recommended that cooperating teachers and teacher educators continue to provide opportunities for student teachers to reflect verbally during the student teaching experience. For example, cooperating teacher and student teacher dyads should be encouraged to meet and communicate on a daily basis; thereby, reflective thinking can be conducted as a collegial activity to identify the learning and professional growth the student teacher is experiencing. Perhaps, the use of a communication network or technology such as "videoconferencing" that provides a live, two-way, interactive audio and video system could be used by student teachers and university supervisors to facilitate verbal reflection on a more frequent schedule (Miller, Miller, & Kessell, 2002). Further, opportunities for student teachers to meet as a cohort for verbal reflection should be provided and scheduled during the student teaching experience.

The development of a JWO scale assisted in quantifying student teacher responses regarding aspects of journal writing. Participant answers to open-ended questions provided further support for the JWO construct, and resulted in similar and complementary findings. The first was that reflective thinking and pedagogy were enhanced through journal writing. In general, student teachers perceived that journal writing assisted them to think purposefully about their learning, reflect on what they had accomplished during the day, and process the challenges they were facing to arrive at possible solutions. Thus, this study found support for Dewey's (1933, 1938) notion of reflection as problem solving, and Schön's (1983, 1987) theory of reflection-on-action from the perspective of student teachers in career and technical education. Second, this study found partial support for the concept that writing in a journal helps to relieve stress and reduce tension associated with the challenging experiences of student teaching (Callister, 1993; Dyment & O'Connell, 2003; Hill, 2005).

This study found no significant difference between those student teachers who received and those student teachers who did not receive journal prompts on JWO. However, those student teachers who did not receive journal prompts reported that their ability to write in a deeper, more reflective style improved during student teaching. Their mean score was significantly higher than the mean score of those student teachers who received journal prompts. A possible explanation for this finding is that student teachers who have structure in the form of a prompt might feel as if journal writing is an assignment rather than an expression of their own experiences, and could feel a loss of ownership of their ideas (Pailliotet, 1997; Wolf et al., 1996). As a result, the perception of writing in a deeper, more reflective style may not be as evident to student teachers who received a journal prompt.

While many participants perceived that the journal writing process went well, the most frequent suggestions for the journal writing component of student teaching focused on structure and clarity. Student teachers were mixed in their reactions to providing less or more structure for journaling; whereby, it was concluded that journal writing is a personal and unique endeavor. Some student teachers desired less structure and preferred to have greater flexibility regarding when their reflections should be completed and how often to journal. In contrast, an almost equal number of student teachers indicated that they would have benefited from more structure with enforced deadlines for the weekly journals. Participants were mixed in their suggestions regarding journal prompts, with some student teachers desiring structure and others wanting more independence. Consequently, clarity was an issue related to structure, and student teachers generally indicated that the purpose, instructions, and strategies for journal writing should be clearly explained. Teacher educators may have taken for granted that college seniors know how to journal, have embraced journal writing as a personal practice, and are familiar with the benefits of the reflective writing process.

The study had limitations that restrict the generalizability of the results. First, the study was conducted with three cohorts of agricultural education student teachers at one Midwestern university. Therefore, the results are limited to student teachers at that university. This study should be replicated at other universities, and with other licensure areas within and outside of career and technical education. Additionally, the selection of student teachers for assignment to the two groups was not totally random; rather, selection was based on university supervision assignments and programmatic changes reflected in journal writing expectations. However, chi-square analysis did not reveal differences in the preferred reflective modality between the two groups of student teachers. Further, the JWO construct needs additional development and refinement using psychometric analyses.

This study was a preliminary investigation into journal writing and reflective thinking in the context of teacher development in career and technical education. The findings from this study provide teacher educators with necessary information to explain the benefits, barriers, and strategies of journal writing to students in a purposeful manner. Further investigations should extend beyond descriptive statistics and content analysis; they should measure the level of reflective thinking that is being exhibited by student teachers aspiring to become reflective practitioners. Further, the predictors of reflective thinking, and the impact that reflective thinking has on effective teaching and student achievement should be examined.

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