

The Relevance of Reflection: An Empirical Examination of the Role of Reflection in Ethic of Caring, Leadership, and Psychological Well-Being

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This article is an empirical examination of reflection for first-year and third-year students using data from the College Students' Beliefs and Values survey. Frequency of self-reflection increased between the first and third years of college. Two self-reported measures of reflection, engaging in self-reflection and having classes that incorporated reflective writing, were among the strongest significant positive predictors of Ethic of Caring and Leadership in the third year of college. Self-reflection was, however, negatively related to Psychological Well-Being. The findings point to the importance of supporting reflection in curricular and cocurricular activities in order to promote learning and self-understanding.

College students spend much of their time multitasking, juggling classes, jobs, cocurricular activities, commuting, and family, among other commitments. They also attend to these activities in an era of unprecedented technological ubiquity, as they monitor cell phones, text messaging, e-mail, video chat, Twitter, Facebook, blogs, and YouTube. Given the busyness of modern American life and the particular intensity of the college years, with students often renegotiating their sense of self and relationships with significant others on top of the demands of coursework and other responsibilities, one wonders if college students ever take time to sit back and reflect on the

bustle of activity going on around them.

Perhaps in response to the busyness of college life, it has become increasingly popular to incorporate time for reflection into curricular and cocurricular activities (Morton & Campbell, 2007; Quaye, 2007). In 2005, 18.1% of full-time undergraduate faculty said they incorporated reflective writing into most or all of their classes; and in 2008, 21.7% of faculty did so (Lindholm, Szelényi, Hurtado, & Korn, 2005; DeAngelo et al., 2009). The value of reflection for learning and self-development is by no means a new idea, having been prominently espoused by John Dewey in the early 20th century. Amidst the interest in giving students time and space to process responses to course content and new experiences, we became curious to probe further the experience of reflection and its possible relationship to certain outcomes valued by higher education. Does reflection make an impact that can be observed quantitatively? To answer this question we conducted an empirical examination of the effects of self-reported student engagement in self-reflection and reflective writing or journaling on three constructs developed by Astin, Astin, and Lindholm (2010): (a) Ethic of Caring, (b) Leadership, and (c) Psychological Well-Being. Data are from the 2004 and 2007 College Students' Beliefs and Values Survey, a

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longitudinal nationwide survey examining the spiritual and religious development of college students.

BACKGROUND AND LITERATURE

Reflection is generally understood to be a process during which an individual contemplates his or her experiences, perception of reality, and his or her role in the world (Ash & Clayton, 2004; Dewey, 1933; Hatcher & Bringle, 1997; Simpson, Jackson, & Aycok, 2005). It is a key component of “deep learning,” a method that also emphasizes integration and synthesis (Nelson Laird, Shoup, Kuh, & Schwarz, 2008). Referencing Langer’s (1978) work on automatic and mindless thinking, Gurin, Dey, Gurin, and Hurtado (2004) note: “One of our tasks as educators is to interrupt these automatic processes and facilitate active thinking among students” (p. 105); and reflection can be a venue to encourage “active, effortful, conscious modes of thought” (p. 106).

Reflection can be focused on problem solving or on increasing self-awareness. Dewey’s conceptualization of reflection is that it can help individuals make connections between their experiences and others’, and over time, help communities advance social progress (Rodgers, 2002). Through critical reflection, individuals may identify and resolve differences between their values and experiences (Morton, 1993), and they may mentally wrestle with social problems (Schön, 1987). They may become aware of how injustice is created and their own power to create social change (Freire, 1970). Colleges and universities have traditionally been charged with preparing students for their future roles in society. Bowen’s (1977) notion of citizenship calls for developing an awareness of significant social issues and a disposition to participate in civic and political organizations. Central to this idea of citizenship is a recognition and

understanding of one’s own role in society, which suggests that it is critical for students to have opportunities to reflect on their responsibility in the greater world. Engagement in critical reflection can potentially empower students to articulate their own understanding of the world, but the heightened awareness of social or personal problems may also lead to anxiety and angst (Hixon & Swann, 1993).

Some research has suggested that self-reflection has a “significant facilitative effect on identity development” and that adolescents who engage in self-reflection are more likely to develop a differentiated sense of self (Shain & Farber, 1989, p. 389). Within the college student development literature, reflection is often associated with critical thinking, which is commonly used as a marker of students’ cognitive development. It seems that reflection may be an important related and complementary cognitive skill. Reflective processes, as described above, are characterized by their constructivist nature. They are central to resolving the myriad types of problems that individuals encounter for which they cannot possibly be fully prepared through any type of educational process, prompting Pascarella and Terenzini to include such cognitive processes as “postformal reasoning” (2005). When reflection becomes part of an individual’s thought process, the cognitive mechanism at work is what King and Kitchener call “reflective judgment” (1994). Several studies measuring the development of postformal reasoning skills have concluded that students with 3 and 4 years of college show higher levels of reflective thinking than first-year and second-year students (Baxter Magolda, 1990; Kitchener, Wood, & Jensen, 1999; Mines, King, Hood, & Wood, 1990; Pascarella & Terenzini). Extrapolating from the existing literature, Pascarella and Terenzini assert that individuals who attend college develop higher levels of reflective judgment than those who do not.

Reflection often occurs through formal or informal discussions, recorded thoughts, or contemplative practice (Clyde, Walker, & Floyd, 2005; Rendón, 2009). Both the process of reflection, giving people space to mull over their thoughts in a flexible, yet intentional manner, and the actual content of what they are reflecting on are important matters. For instance, Wong and Rochlen (2009) found that college men who wrote in a journal about their ideal emotional connectedness with a romantic partner experienced a significantly greater decrease in psychological distress than men who were asked to write about an impersonal topic. In the case of academic advising, Pizzolato (2006) found that advising sessions that specifically incorporated goal reflection enhanced decision-making and self-authoring abilities. Having students write reflectively in journals has been lauded as an important pedagogical tool that helps students process and internalize information (Cisero, 2006; Mills, 2008; Spalding & Wilson, 2002). Mills notes that while English language composition classes seem to be the most natural fit for journaling, social science, math, and science instructors have testified to the effectiveness of using reflection in the classroom (Cook, 2000; Borasi & Rose, 1989). There has been little research looking at differences between subgroups of students in their experiences with reflection; however, Csank and Conway (2004) analyzed levels of self-reflection among 191 undergraduates and found that women engaged in greater self-reflection on their personal traits and characteristics than men did.

We were specifically interested in examining any relationship between reflection and the outcomes of Ethic of Caring, Leadership, and Psychological Well-Being. Regarding the first two constructs that address community engagement and leadership, many colleges and universities have incorporated reflection into service learning opportunities (McClam,

Diambra, Burton, Fuss, & Fudge, 2008), which mediate growth in leadership and citizenship through civic engagement (Hatcher & Bringle, 1997). The use of reflection in service learning is grounded in Dewey's philosophy that experiential learning is essential to the development of critically engaged citizens, and that reflection facilitates both learning and practice by providing opportunities to reflect reflexively on practice (Dewey, 1916, 1933). Reflection helps students link their experiences with learning objectives, encouraging personal growth and understanding (Astin, Vogelgesang, Ikeda, & Yee, 2000; McClam et al.). For instance, Cress, Astin, Zimmerman-Oster, & Burkhardt (2001) in their study of 10 institutions found that increases in a sense of civic responsibility and leadership development between the first and fourth years of college were strongly related to various types of self-reflection and engagement used in service learning.

The relationship between reflection and psychological well-being is less clear. In a set of four experiments, Hixon and Swann (1993) found that modest amounts of self-reflection had a positive relationship with self-concept; however, they were uncertain if the same benefits existed if the amount of time spent in reflection varied. Esterling, L'Abate, Murray, & Pennebaker (1999) found that reflection through therapeutic writing had some positive benefits, being associated with "increased insight, self-reflection, optimism, sense of control, and self-esteem" (p. 92). Other benefits included improvement in organization and the development of adaptive coping strategies. However, several studies cited by Lyubomirsky (2001) present conflicting viewpoints about the influence of reflection on one's sense of well-being. It is possible that reflection gives individuals more time to dwell on negative experiences, or that it opens the door for people to be more aware of social or personal problems, leading to feelings of anxiety.

Building on previous literature, we set out to test whether two self-reported measures of reflection—engagement in self-reflection and reflective writing or journaling—have a significant effect on these three outcomes. While reflection has been presented as a key part of the student development process in avenues such as service learning, there have been few empirical, quantitative studies testing whether there are measurable effects of reflection on student development outcomes. We were also interested in seeing if rates of reflection vary by demographic traits such as gender, race/ethnicity, and institutional type, as well as how rates of self-reflection vary between the first and third years of college. Finally, given the discrepant findings related to previous studies about reflection and psychological well-being, we sought to expand our understanding of their relationship.

THEORETICAL INFLUENCES

We draw on Kegan's constructive-developmental framework (1982, 1994) and Baxter Magolda's work on epistemological reflection and self-authorship (1992, 2004, 2009) as the guiding theoretical frameworks for this study. Kegan and Baxter Magolda both discuss the concept of *meaning making* in ways that are useful for understanding how engagement in reflection might affect student outcomes. In this section, we outline each theoretical framework, how they relate to each other, and how they help us frame the study. Kegan emphasizes the importance of emotional, social, and personal influences on lifelong personal development. He argues that human existence is a process of making meaning out of experiences, which in turn lead an individual to a higher state of existence. Like other neo-Piagetian, constructive-developmental theorists, he subscribes to a common set of assumptions about human existence. First,

individuals generally have little awareness of how they understand and create their realities. Second, reality is not a universal objective but something that results from how individuals make sense of their experiences over a lifetime. These interpretations form meaning systems, which organize our thoughts, feelings, and actions, and subsequently contribute to our behaviors.

Kegan's constructive-developmental framework, though not a stage theory, involves movement from simpler levels of meaning making to more complex orders, focusing on how individuals distinguish between themselves and others. At simpler levels of meaning making, individuals are less capable of controlling impulsive behaviors and perceptions. Their emotions are shaped by a perception of how others react to their behaviors and they do not hold a shared sense of reality with others. Development involves movement from a simplistic perspective of the relationship of the self to others to a more complex relationship that requires balancing and negotiation. Movement from simpler levels of meaning making to more complex levels requires individuals to dialogue with themselves. They must be self-reflective and able to isolate their motivations, as well as integrate perceptions of their own needs with the needs of others. Individuals with meaning-making systems in which they can differentiate between themselves and others indicates the presence of a reorganized interior life in which the individual can internally consider the other when thinking, feeling, and acting. It is both an internal transformation and reconstitution of the self that lead to more complex ways of meaning making, by which individuals are able to identify their impulses and consider the interactions that could result from their actions, a shift due in part to the development of a sense of interdependence. Because of the role that self-reflection plays in an individual's

movement from simpler to more complex ways of meaning making, Kegan's theory further impresses upon us the significance of reflection.

Baxter Magolda's constructivist conceptualization of epistemological reflection (1992, 2001, 2004) draws on Kegan's work (1982, 1994) to suggest that holistic development includes an interplay of the cognitive, interpersonal, and intrapersonal. Baxter Magolda's early work on epistemological reflection (1992), based on her longitudinal study of 70 college students, expanded to include a holistic approach to self-authorship (2001, 2004, 2009). She asserts that the development of personal epistemology is connected to identity (intrapersonal) and relationship (interpersonal) development. Individuals actively construct their personal epistemologies as they make sense of what happens to them; in this way, interpretation is an ongoing process. Individuals' interpretations are shaped by their assumptions about themselves and their worldview and are informed by the context in which the experiences occur. For college students, educators and peers play significant roles in the college context.

As individuals accumulate and interpret new experiences, incorporating them into their existing worldviews, they are likely to develop increasingly complex meaning-making systems; however, some important processes need to take place concurrently. Individuals must develop an internal voice—a perspective that is not dependent on what others tell them. Movement toward more complex meaning-making systems can be facilitated by certain conditions of the college experience. Opportunities for self-reflection, exploring emotional responses to experiences, and identifying and managing conflict facilitate the development of self-authorship. Furthermore, these forms of support help students to move

toward self-authorship by validating their emerging systems of making meaning.

The dialogue that emerges from Kegan and Baxter Magolda is as follows: Who you are—what you believe about yourself and the world—shapes how you know the world; this is your meaning-making system. What you know shapes thoughts, feelings, and actions, and your interpretation of your behaviors and experiences is subsequently shaped by your meaning-making system. The cycle is repeated as each new experience shapes what individuals believe about themselves and the world, altering their meaning-making systems. New experiences, interpretations, and the development of an internal voice pave the way for higher levels of meaning making.

RESEARCH QUESTIONS AND HYPOTHESIS

The study was guided by the following research questions: How do patterns of reflection vary among traits such as gender, race, and college major? Do student self-ratings on the outcomes of Ethic of Caring, Leadership, and Psychological Well-Being vary by their engagement in reflection? Does engaging in self-reflection or reflective writing or journaling have a significant effect on a student's Ethic of Caring, Leadership, and Psychological Well-Being in the third year of college?

Although individuals are continuously engaged in meaning-making processes, we hypothesized that more frequent, extended, or intentional times spent in reflection mediate the development of students' meaning-making systems, which in turn positively affect student outcomes. In the busyness of college life, taking time to reflect may provide a rare opportunity for students to meaningfully process their societal roles, shifting identities, or future aspirations.

METHODOLOGY

Sample

The sample for the study is from a pool of students who completed both the 2004 and 2007 College Students' Beliefs and Values (CSBV) surveys created and administered by the Spirituality in Higher Education Project Team at the UCLA Higher Education Research Institute (HERI). Funded by the John Templeton Foundation, the Spirituality Project is the most comprehensive empirical longitudinal study of spirituality and religion in the lives of college students to date. The CSBV survey contains questions having to do with students' attitudes, beliefs, values, and experiences on an array of experiences related to religion, spirituality, and college life. After the survey was piloted in 2003, a 2004 version was completed by students as part of an addendum to The Freshman Survey annually administered by HERI. (For more details on the development of the CSBV surveys and The Freshman Survey, including information on validity and reliability, please see Astin et al., 2010; UCLA Higher Education Research Institute [UCLA HERI], n.d.; UCLA Spirituality in Higher Education Project, 2004, 2007.) After we eliminated institutions where the response rate was too low and weighted the data to reflect the national population of first-year, full-time college students, 207 institutions were invited to participate in the 2007 CSBV follow-up survey. While 148 institutions agreed to participate, 12 were later removed from the sample because their response rates were too low. A total of 14,527 students completed both the 2004 and 2007 surveys, reflecting a response rate of 40% for the final 136 participating institutions. The data were weighted to compensate for nonresponse; missing values were imputed using the multiple regression method in which nonmissing cases are used to predict values for missing cases.

Analyses and Variables

Cross-tabulations were conducted on the data to examine the rates of self-reflection and reflective writing for students from different subgroups in 2004 and 2007. Additional descriptive analyses were conducted to examine how students who engaged in varying levels of reflection rated themselves on three factors developed through varimax rotation by Astin et al. (2010, see also Park & Millora, 2010): Ethic of Caring, Leadership, and Psychological Well-Being. Appendix A contains a full listing of items in each outcome, but in brief:

- Ethic of Caring (EC) refers to a student's commitment to being involved in helping others through activities such as community engagement, promoting racial understanding, and environmental cleanup.
- Leadership includes self-ratings on traits such as leadership ability, public speaking, and self-understanding.
- Psychological Well-Being (PWB) refers to a student's self-rated emotional health, as well as several reverse-coded items addressing frequency of feeling depressed, feeling filled with stress and anxiety, and feeling overwhelmed.

We chose these three outcomes because of the importance ascribed to them in the higher education landscape (Astin et al., 2000; Council for the Advancement of Standards in Higher Education, 1999; Cress, Astin, Zimmerman-Oster, & Burkhardt, 2001; Kitzrow, 2003); we also hypothesized that reflection might play a role in each one. To see whether self-reflection or reflective writing had a significant effect on the three outcomes when other variables were controlled for, we included both as independent variables in each regression analysis.

Each regression used the same set of

independent variables, which were chosen based on previous research on college impact (Astin, 1993) and separated into four blocks: (a) background characteristics and precollege experiences, (b) major and residence, (c) institutional characteristics, and (d) college experiences. Each block was force-entered into the regression equation. Each regression had three independent variables measuring reflection: a student's 2004 and 2007 self-reported frequency of self-reflection (coded 1 = not at all, to 6 = daily) and the 2007 question "How many of your professors used reflective writing or journaling in class?" (coded 1 = none, to 4 = all). The simple correlation between the 2007 self-reflection and reflective writing variables was .05, suggesting that multicollinearity was not a serious concern and that both measures could be used in each analysis. Variables from the HERI 2004–2005 Faculty Survey were merged into the dataset to create two composite measures of means from the Faculty Survey: faculty focus on spirituality (capturing faculty attitudes towards whether colleges should address spirituality) and faculty use of civic-minded practice (such as teaching service learning courses or collaborating with the local community; see Appendix B for full listing of items); these variables were included in the institutional characteristics block.

RESULTS

Descriptive Analyses

Table 1 shows the frequency of self-reflection for the selected groups of students in 2004 and 2007. For ease of interpretation, the self-reflection variable was recoded into four categories: 1 = not at all, 2 = less than monthly or monthly, 3 = once or several times a week, and 4 = daily.

Overall, self-reflection increased for students during 3 years of college; the percentage of students who reported that they

engaged in self-reflection daily increased from 21.6% in 2004 to 31.3% in 2007. There were not marked differences between men and women although the gap between male and female students stating that they never engaged in self-reflection narrowed between 2004 and 2007. Black and Native Hawaiian / Pacific Islander students were most likely to reflect daily by 2007. Students from evangelical and nonsectarian institutions were most likely to report self-reflecting daily in 2007. Regarding major, the percentage of students in health, math/statistics, or physical science majors who reported self-reflecting once or several times a week each rose by over 10 percentage points. Self-reflecting daily grew by over 10 percentage points for agriculture, engineering, English, history / political science, and social science students. Shifts in the rate of self-reflection were less apparent for business majors.

Table 2 shows the distribution of student responses to the question "How many of your professors used reflective writing or journaling in class?" in 2007. Black students and those attending evangelical or other religious institutions were least likely to say that none of their classes involved reflective writing or journaling. Asian American students were most likely to say that none of their classes incorporated reflective writing.

Table 2 includes responses for reflective writing or journaling used in class by the students' majors. The majority of respondents for all majors fell into the some category, but students from agriculture, physical science, math/statistics, engineering, and biological science majors were most likely to say that none of their classes included reflective writing. Interestingly, with the exception of biological science majors, students from these majors were also notably more likely to engage in self-reflection after 3 years of college than they were as first-year students.

To examine if levels of self-reflection

TABLE 1.
Self-Reflection in 2004 and 2007 for Subgroups of Students

Subgroup (Year Reported)	n	Not at All		Less Than Monthly or Monthly		Once or Several Times a Week		Daily	
		2004	2007	2004	2007	2004	2007	2004	2007
Sex (2004)									
Male	6,534	13.3	5.9	23.8	17.3	41.5	45.0	21.3	30.8
Female	7,993	8.9	4.7	26.3	19.0	43.0	45.4	21.8	31.8
Race/Ethnicity (2004)									
White	10,937	11.4	5.9	25.5	18.5	42.8	45.2	20.4	30.4
Black	674	10.0	1.4	24.8	15.7	34.4	48.0	30.8	34.9
American Indian / Alaska Native	260	7.5	0.0	10.6	13.2	48.4	60.3	33.5	26.5
Asian American	1,141	7.1	6.9	24.1	13.6	46.1	45.1	22.7	34.4
Native Hawaiian / Pacific Islander	186	30.8	0.0	13.7	10.6	25.8	34.1	29.7	55.3
Latino/a	845	6.7	2.0	27.0	18.0	45.3	48.5	21.0	31.4
Other Race	323	10.6	4.7	41.3	42.7	24.8	30.5	23.4	22.1
Institutional Type									
Catholic Institutions	1,017	11.0	5.9	25.8	18.0	40.6	47.5	22.7	30.4
Evangelical Institutions	429	3.6	1.4	17.8	11.4	53.1	50.0	25.5	37.2
Other Religious	1,131	8.6	3.9	19.9	12.6	47.0	48.2	24.5	35.2
Nonsectarian Institutions	2,389	6.5	3.9	21.6	15.5	44.0	43.2	27.9	37.4
Public	9,561	12.6	5.9	27.1	19.9	41.0	45.1	19.4	29.1
Private	4,966	7.6	4.1	21.7	15.0	44.8	45.5	25.8	35.4
Major (2007)									
Agriculture	70	3.7	0.0	35.2	22.4	51.9	55.2	9.3	22.4
Bioscience	1,340	8.3	3.7	23.9	21.4	46.0	43.5	21.8	31.3
Business	2,185	12.0	5.9	25.7	23.0	43.1	47.3	19.2	23.9
Education	1,032	9.4	4.9	35.4	23.0	40.3	47.4	15.0	24.8
Engineering	1,689	14.9	8.0	28.0	19.8	39.4	42.2	17.7	30.4
English	417	5.7	4.3	16.0	8.9	43.8	42.1	34.5	44.7
Health Professions	948	18.1	6.2	17.9	16.0	43.8	59.9	20.2	17.9
History / Poli. Science	841	8.0	5.2	19.4	17.0	49.0	42.8	23.6	35.0
Humanities	586	5.3	3.1	23.7	16.6	40.1	39.7	31.0	40.6
Fine Arts	397	8.9	3.0	21.3	15.9	35.0	42.8	34.8	38.3
Math/Statistics	241	9.7	3.4	21.7	10.5	33.6	43.7	35.0	42.4
Physical Sciences	448	10.1	3.6	24.4	12.3	45.9	59.5	19.6	24.6
Social Sciences	2,320	8.2	4.2	25.6	16.5	44.1	42.6	22.1	36.8
Other Tech	331	12.7	9.6	31.8	20.7	35.0	39.5	20.4	30.2
Other Non-Tech	1,630	11.8	4.3	27.1	14.5	39.4	43.7	21.7	37.5
Undecided	53	50.9	47.1	3.8	17.6	32.1	15.7	13.2	19.6
All Students (N)	14,527	10.9	5.2	25.2	18.2	42.3	45.2	21.6	31.3

TABLE 2.

Classes With Reflective Writing or Journaling as Reported by Subgroups in 2007

Subgroup (Year Reported)	<i>n</i>	None	Some	Most	All
<i>Sex (2004)</i>					
Male	6,534	19.7	69.7	9.3	1.3
Female	7,993	15.8	67.9	14.1	2.1
<i>Race/Ethnicity (2004)</i>					
White	10,937	17.7	69.2	11.1	1.9
Black	674	9.9	71.6	15.0	3.5
American Indian / Alaska Native	260	11.6	80.2	7.4	0.8
Asian American	1,141	24.3	63.9	11.6	0.3
Native Hawaiian / Pacific Islander	186	16.3	64.6	13.5	5.6
Latino/a	845	15.9	72.2	11.1	0.8
Other Race	323	15.3	47.8	36.6	0.3
<i>Institutional Type</i>					
Catholic Institutions	1,017	13.5	67.6	16.5	2.4
Evangelical Institutions	429	8.3	71.3	18.0	2.4
Other Religious	1,131	8.1	71.7	17.2	3.0
Nonsectarian Institutions	2,389	16.2	67.9	13.4	2.4
Public	9,561	19.9	68.6	10.2	1.4
Private	4,966	13.1	69.0	15.3	2.5
<i>Aggregated Major (2007)</i>					
Agriculture	70	28.8	63.6	6.1	1.5
Bioscience	1,340	25.6	65.8	7.9	0.7
Business	2,185	15.3	74.9	8.6	1.2
Education	1,032	4.1	53.2	38.1	4.6
Engineering	1,689	27.9	71.1	1.0	0.1
English	417	13.1	62.0	22.0	2.9
Health Professions	948	16.9	67.2	13.4	2.5
History / Political Science	841	21.4	67.9	8.6	2.2
Humanities	586	12.0	71.0	15.5	1.5
Fine Arts	397	10.2	65.1	20.7	4.1
Math / Statistics	241	24.5	70.1	5.4	0.0
Physical Sciences	448	24.0	71.5	4.0	0.4
Social Sciences	2,320	15.5	69.9	12.7	1.9
Other Technical	331	16.4	68.0	13.5	2.1
Other Nontechnical	1,630	9.6	67.3	1.9	21.2
Undecided	53	9.6	67.3	1.9	21.2
All Students (<i>N</i>)	14,527	17.6	68.7	11.9	1.8

TABLE 3.
Self-Reflection and Reflective Writing or Journaling
by Varying Levels of EC, Leadership, and PWB

	2007 EC			2007 Leadership			2007 PWB		
	Low	Med	High	Low	Med	High	Low	Med	High
<i>Self-Reflection in 2007</i>									
None	49.7	41.6	8.7	19.5	52.5	28.0	6.6	66.8	26.6
Less Than Monthly or Monthly	27.0	54.4	18.6	14.1	56.8	29.1	12.2	64.2	23.6
Once or Several Times Weekly	14.0	57.4	25.6	11.2	52.0	36.9	10.2	67.3	22.4
Daily	13.0	51.4	35.6	7.5	46.4	46.1	13.7	68.8	17.4
<i>Classes Incorporating Reflective Writing or Journaling in 2007</i>									
None	29.4	52.2	18.3	14.7	49.9	35.4	12.6	61.1	26.3
Some	18.5	55.1	26.3	10.9	52.6	36.5	11.0	68.2	20.8
Most	9.5	53.3	37.2	7.3	46.8	45.9	13.5	69.8	16.8
All	11.3	40.7	38.0	2.4	34.7	62.9	9.6	69.9	20.5

and classes incorporating reflective writing in 2007 varied by the 2007 outcomes of EC, Leadership, and PWB, we broke each outcome into low, medium, and high categories. (See Table 3 for low, medium, and high cut points for each factor.) The general pattern was that students who self-reflected daily or had more classes that incorporated reflective writing were least likely to score low on EC and Leadership. Students who self-reflected daily in 2007 were less likely to score high on PWB than their peers who self-reflected less often.

Regression Analyses

Table 4 shows significant final β coefficients for EC, Leadership, and PWB in 2007 after all four blocks of variables entered the regression equation.

For EC, the independent variables included in the analysis accounted for 46% of the variance. Out of all variables, a student's level of EC during their first year of college was the strongest predictor of EC in 2007.

Several interesting sign reversals occurred in β coefficients across blocks. Both gender and intellectual self-concept in 2004 had positive simple correlations with the dependent variable, but were significant negative predictors of EC once other background characteristics were controlled. Majoring in the biological sciences or social sciences was the strongest predictors of EC compared to other majors. Also, students at institutions with higher percentages of full-time female faculty were significantly more likely to score higher on EC. A number of college experiences reported by students—ranging from professors encouraging exploration of questions of meaning and purpose to students participating in leadership training—were significant positive predictors of EC. In regards to the variables of greatest interest, we found that the rate of self-reflection in the third year of college was a significant positive influence on students' EC ($\beta = .11$). In addition, students with more courses that included reflective writing or journaling had

significantly higher levels of EC ($\beta = .06$).

Moving on to Leadership, the independent variables included in the analysis accounted for 65% of the variance. Besides a student's level of Leadership in 2004, the strongest predictor of Leadership in 2007 was gender, with women being significantly less likely to score higher on Leadership. Attending an institution where faculty felt that faculty and colleges should give some focus to spirituality was the strongest predictor of Leadership. Playing intercollegiate sports, performing volunteer work, and spending time with student clubs and groups were all positively related to leadership development. Finally, self-reflection in 2007 and having more courses with reflective writing or journaling were both significant positive predictors of Leadership in 2007 ($\beta = .08$ for both); these were the strongest predictors of Leadership out of the 2007 college experience variables.

The independent variables accounted for 34% of the variance in PWB. A student's 2004 level of PWB was the strongest predictor of 2007 PWB in the final model. Those with higher levels of self-reported Leadership who did community service as part of class, or donated money to charity had significantly higher levels of PWB. Being female and being a student of color were significant negative predictors of PWB, a finding consistent with work by Park and Millora (2010). A student's 2004 level of religious struggle was also a strong negative predictor of PWB, mirroring results found by Bryant and Astin (2008).

Business, history, and political science majors were more likely to exhibit higher levels of PWB; students who majored in the physical sciences showed the opposite trend. PWB was significantly lower at Catholic and private nonsectarian institutions. Also, an institution's peer aggregate level of religious engagement was also a negative predictor of PWB; however, attending an institution where

faculty believed that there should be attention given to spirituality was the strongest positive predictor of PWB among institutional variables. Regarding college experiences as measured in 2007, the more time students spent studying and doing homework as third-year students, the less likely they were to demonstrate high levels of PWB ($\beta = -.10$). Experiencing personal injury or having a serious illness during college was also negatively related to PWB ($\beta = -.09$), as were personal challenges such as having parents divorce or experiencing the death of a close friend or family member. Lastly, self-reflection in 2007 was a negative significant predictor of PWB ($\beta = -.04$). Engaging in reflective writing or journaling was not a significant predictor of PWB.

DISCUSSION AND IMPLICATIONS

We found that not only did students increase overall in their self-reported rates of self-reflection from the first year of college to the third year of college, but there were notable patterns in regards to race, gender, institutional type, and major. Also, students who engaged in greater levels of self-reflection and had more classes with reflective writing or journaling generally scored higher on levels of EC and Leadership as third-year students; however, this linear pattern did not extend to PWB. The findings of the regression analysis confirmed this pattern for PWB, as self-reflection was a negative predictor of PWB while reflective writing was nonsignificant; however, self-reflection in 2007 and reflective writing or journaling were both significant positive predictors of students' EC and Leadership in 2007. Engaging in self-reflection was the second strongest predictor of EC out of 2007 college experiences and both types of reflection were the strongest predictors of Leadership among the college experience variables.

It should be noted that students' self-

TABLE 4.
Final β Coefficients for EC, Leadership, and PWB Regressions

	Ethic of Caring <i>n</i> = 9,741	Leadership <i>n</i> = 9,665	Psychological Well-Being <i>n</i> = 9,689
Block 1: BACKGROUND CHARACTERISTICS			
Variables From 2004 Survey			
Religious Struggle	-.03**	-.01	-.08***
Religious Engagement	-.07***	-.10***	.00
Ethic of Caring	.35***	.01	-.05***
Equanimity	.06***	.03**	.13***
Spiritual Quest	.03*	.00	.02
Psychological Well-Being	-.06***	.02*	.35***
Alcohol Consumption	-.02*	-.02	-.01
Leadership	.03**	.45***	.07***
Intellectual Self-Concept	-.08***	.03**	.00
High School GPA	.04***	.03**	.00
Gender (Female)	-.11***	-.14***	-.17***
Socioeconomic Status	.01	.00	-.06***
Race / Ethnicity			
Black / African American	-.01	.02	-.07***
American Indian / Alaskan Native	.02*	.03***	-.04***
Asian American / Asian	.00	.02	-.03**
Native Hawaiian / Pacific Islander	.00	.01	.02*
Latino/a	-.01	.00	-.06***
Religious Preference			
Baptist	-.01	.02	-.01
Buddhist	.01	-.02**	-.01
Church of Christ	-.06***	-.01	-.03**
Eastern Orthodox	-.01	.03***	-.01
Episcopalian	-.02*	.00	.01
Hindu	-.01	.00	.01
Islamic	.00	.01	-.01
Jewish	-.02*	.00	-.01
Mormon	-.01	.01	-.01
Lutheran	-.03**	.00	-.01
Methodist	-.03**	-.01	.03**
Presbyterian	-.01	.00	.01
Quaker	-.01	.00	.01

table continues

TABLE 4. *continued*

	Ethic of Caring <i>n</i> = 9,741	Leadership <i>n</i> = 9,665	Psychological Well-Being <i>n</i> = 9,689
Catholic	-.04**	-.02	.00
Seventh Day Adventist	-.02**	.02	.02*
Unitarian/Universalist	-.02*	-.02*	.00
UCC Congregational	-.03**	-.02**	.00
Other Christian	-.04***	-.02*	-.02
Hours per Week Spent			
Studying/Homework	.02*	-.02*	-.01
Student Clubs/Groups	-.01	-.03**	-.05***
Watching TV	.00	.03**	.00
Working for Pay	-.02*	.00	.05***
Did Community Service as Part of Class	.00	.02*	.05***
Socialized With Different Ethnic Group	-.02*	-.08***	.01
Engaged in Self-Reflection	-.06***	.02*	-.02*
Engaged in Prayer	.08***	.04**	-.01
Do You Believe in God? (Yes)	-.01	.02	-.01
Helped Friends With Personal Problems	-.02**	.04***	.03*
Donated Money to Charity	-.03**	.03**	.04***
Degree Aspirations	-.02	.02	-.01
Political Orientation (Liberal)	.08***	.02*	.01
Self-Rated Physical Health	.01	-.02	.02*

Block 2: MAJOR AND RESIDENCE

Major			
Agriculture	.00	-.02**	-.02*
Biological Science	.07***	-.01	-.02
Business	.03**	.06***	.06***
Education	.03**	-.02	.03**
Engineering	-.05***	-.02	.02
English	.03***	-.02	-.02
Health professions	.03**	-.07***	.03*
History / Political Science	.06***	.02*	.04**
Humanities	.02*	.00	-.01
Fine Arts	.00	.01	-.01
Mathematics/Statistics	-.01	-.01	.01
Physical Sciences	.02*	-.03***	-.05***
Social Sciences	.11***	-.03**	.02

table continues

TABLE 4. *continued*

	Ethic of Caring <i>n</i> = 9,741	Leadership <i>n</i> = 9,665	Psychological Well-Being <i>n</i> = 9,689
Block 3: INSTITUTIONAL CHARACTERISTICS			
Institutional Selectivity	-.02	.01	.06**
Full-Time Undergraduate Enrollment	-.01	.02	.00
Attended Catholic Institution	-.03*	-.03*	-.05**
Attended Other Religious Institution	-.05**	-.03	-.03
Attended Evangelical Institution	-.01	-.03*	-.02
Attended Private Nonsectarian Institution	-.04**	-.05**	-.05*
Faculty Focus on Spirituality Factor	-.01	.09***	.08**
Percent Full-Time Female Faculty	.05***	.01	.00
Faculty Mean: Civic-Minded Practice	.00	-.02	-.03*
Peer Mean			
Political Orientation	-.02	.04	-.01
Planned on Campus Residence in 2004	.00	-.01	-.03*
Religious Engagement Factor	-.02	.00	-.06**
Ethic of Caring Factor	-.03	-.05*	.04
Block 4: COLLEGE EXPERIENCES IN 2007			
Faculty Encouraged Questions of Meaning and Purpose	.08***	-.03**	-.02
Courses That Included Teaching Method: Reflective Writing/Journaling	.06***	.08***	.00
Hours per Week Spent			
Studying/Homework	.06***	.03**	-.10***
Student Clubs/Groups	.02*	.06***	.03*
Watching TV	-.06***	-.05***	-.03**
Working for Pay	.02*	.02*	.00
Talking With Teachers Out of Class	.06***	.06***	.03***
Socialized With Someone of Another Racial/Ethnic Group	.08***	.06***	.01
Performed Community Service as Part of a Class	.05***	-.02*	-.03***
Took Interdisciplinary Courses	.00	.02	.00
Joined a Social Fraternity or Sorority	-.02	-.02	-.02
Worked Full-Time While Attending School	.04***	.04***	-.04***

table continues

TABLE 4. *continued*

	Ethic of Caring <i>n</i> = 9,741	Leadership <i>n</i> = 9,665	Psychological Well-Being <i>n</i> = 9,689
Had a Romantic Relationship	.03**	.03***	.00
Experienced Personal Injury or Serious Illness	-.02	-.04***	-.09***
Participated in Study Abroad Program	.04***	.02	.03***
Participated in Leadership Training	.12***	.03**	-.01
Participated in Intercollegiate Football or Basketball	-.03**	.05***	.06***
Participated in Other Intercollegiate Sport	-.01	.04***	.03**
Alcohol Consumption Factor	.00	.06***	-.04***
Had Your Parents Divorce or Separate	-.02**	.00	-.04***
Had a Close Friend or Family Member Die	-.02**	.01	-.04***
Participated in Student Government	-.02**	.00	-.01
Donated Money to Charity	.08***	.02*	.00
Performed Volunteer Work	.06***	.04***	.05***
Helped Friends With Personal Problems	.08***	.06***	-.08***
Went on a Religious Mission Trip	.00	.02*	.02*
Participated in Campus Religious Organization	-.01	-.01	-.02
Engaged in Self-Reflection	.11***	.08***	-.04***
Took a Religious Studies Class	.05***	.00	.00
Engaged in Prayer	.04**	.00	.05***
<i>R</i> ²	.46	.65	.34

p* < .05. *p* < .01. ****p* < .001.

reflection in 2004 was a negative predictor of EC in the final model. Although 2004 self-reflection was positively correlated to the dependent variable ($r = .11$), it was consistently a slightly negative predictor of EC once background, major, institutional characteristics, and 2007 college experiences were controlled for. Given that students reported higher levels of self-reflection as third-year students than as first-year students, it may be that the types of self-reflection that students are engaging in as older college students have

a different effect on EC than the types of self-reflection they experienced entering college. Future qualitative research could delve deeper into how reflective experiences evolve or grow in complexity as students go through college.

Several other findings merit further discussion, especially in regards to how they relate to the work of Kegan (1982, 1994) and Baxter Magolda (1992, 2004, 2009) on the role of reflection in the processes of developing more complex ways of meaning making. Because students who engaged in

reflection were more likely to develop greater levels of EC, we infer that reflection provides a venue that can help students understand their interconnectedness with others in the world, an important part of interpersonal development (Baxter Magolda, 2001). Additionally, we wonder if some of the positive effects of self-reflection on EC were partially mediated through leadership development during college. With a final $\beta = .12$, participating in leadership training was the strongest predictor of EC of the college experience variables. Such opportunities may give students time to reflect critically on their roles as leaders, as well as their own interpersonal and intrapersonal development (Dugan, 2006).

In terms of the positive effects of self-reflection and reflective writing on the Leadership outcome, leadership measures of the Social Change Model of Leadership (UCLA HERI, 1996) include *consciousness of self* which refers to “awareness of the beliefs, values, and attitudes, and emotions that motivate action” and *congruence* which refers to “thinking, feeling, behaving with consistency, genuineness, authenticity, and honesty toward others, actions consistent with deeply held beliefs and convictions.” These measures are conceptually helpful in interpreting the positive influence of reflection on leadership development. In line with Kegan’s and Baxter Magolda’s work on the development of meaning-making systems, we posit that reflection gives individuals the time and space to clarify their values and assess their priorities in relationship to themselves and to others, paralleling aspects of leadership articulated in the Social Change Model of Leadership. Thus, it seems logical that when reflection leads to greater self-awareness of values and beliefs, as well as cooperativeness, it positively influences leadership development.

The negative relationship between self-reflection and PWB echoes previous findings that for all of its likely benefits, reflection can

also open the door for individuals to dwell on anxieties and stress. In helping individuals make connections between their experiences and the experiences of others, reflection facilitates individuals’ understanding of themselves and their relationships to others. When individuals engage in critical reflection, they not only see how they are connected to others, they may also recognize social and political inequities. This awareness may lead students to feel melancholy, overwhelmed, or anxious, which is one possible explanation for the negative relationship between self-reflection and PWB. Another possible explanation is because reflection can challenge individuals to deconstruct and reconstruct their understanding of the world, students who engage in reflection may become less accepting of simplistic explanations of what they observe in the world (Park & Millora, 2010). As students achieve higher levels of meaning making and cognitive complexity, reflection may help students to be more aware of contradictions and tensions in their environments, which could lead to feelings of stress or anxiety.

Our finding that reflection was a negative predictor of PWB should not encourage colleges to avoid reflection in order to protect or shelter students. Our findings point to numerous benefits of reflection, but they also challenge student affairs practitioners and faculty to be sensitive to how their students may react to reflective experiences (Bryant & Astin, 2008). While reflection helps students deconstruct prior, more simplistic ways of knowing, students need support as they reconstruct more complex meaning-making systems. Without such support, students could become stuck or retreat back into old patterns without fully developing the capacity to handle complexity (Pizzolato, 2004; Baxter Magolda & King, 2004). Faculty and student affairs practitioners should partner with one other to foster support networks on campuses that can assist students as they grapple with

big questions, disorienting experiences, and challenging curriculums. In some cases, partnering with student psychological services may be appropriate. Indeed, as college students face new interpersonal and intrapersonal challenges, developing higher capacities for meaning making and complexity is essential. Through challenge and support, campus communities can help students reap the positive benefits of reflection. Future research should more closely examine the role that reflection can play in students' well-being, both positive and negative.

This study has several limitations. First, we recognize the inherent limitation of a survey to capture the nebulous, subjective, and multifaceted concept of reflection. Also, students' interpretations of what exactly constitutes self-reflection may vary and we did not provide a guiding definition for the term. Like all surveys, by relying on self-reported data, we are dependent on students' recollections, which may or may not be entirely accurate. Given these circumstances, we do not assert to depict one singular, authoritative conclusion through our findings. By grounding our conceptualization of reflection in a constructivist theoretical framework, we recognize that there are multiple realities and that meaning making is a highly subjective process (Baxter Magolda, 2004). Still, our study complements the existing body of qualitative and theoretical pieces that address reflection, being an unprecedented opportunity to examine longitudinal patterns of self-reported reflection on a national database of students. Secondly, while the findings of this study are generalizable to the national population of full-time, more traditionally aged college students, we realize that such students are unrepresentative of the entire college student population. Future studies should closely examine the experience of reflection for community college students; within-group

or comparative group analyses of specific populations may also yield interesting findings (Carter & Hurtado, 2007). We believe that this study can be a valuable starting point for researchers interested in empirically testing the effects of reflection on college experiences.

In the midst of college student busyness, our findings largely affirm existing theoretical and conceptual work on the generally positive benefits of reflection. It also shows that, by and large, students are increasing in their levels of self-reflection during the college years as they grapple to make sense of new experiences and identities: a byproduct of the college experience, maturation, or some combination of the two. While reflection remains a rather nebulous concept and is practiced in a variety of ways, our quantitative results provide additional support for the importance of bringing reflection into the classroom and cocurricular activities. With the world around us rapidly changing amid the country's largest economic downturn since the Great Depression, there are calls for a greater sense of social responsibility, concern for others, and integrity. As colleges and universities educate a new generation of leaders, we must remember that students need time and space to develop the critical moral and ethical reasoning skills necessary to navigate a complex and interconnected world. As students juggle their many responsibilities, we hope that colleges and universities will foster citizenship and social responsibility by recognizing the importance of allowing students to slow down to reflect on and process the world around them and their place in society.

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APPENDIX A.

CSBV Survey Items Constituting Dependent Variable Factor Scales

Factor Items	Coding	Factor Items	Coding
ETHIC OF CARING (8 Items), $\alpha = .82$		Rate yourself on the following trait as compared with the average person your age:	
Please indicate the extent to which you engage in:	1 = not at all, to 3 = to a great extent	Self-rated emotional health	1 = lowest 10%, to 5 = highest 10%
Trying to change things that are unfair in the world		During the past year, please indicate how often you have:	1 = not at all, to 3 = frequently
Indicate the importance to you personally of:	1 = not important, to 4 = essential	Felt filled with stress and anxiety	(reverse coded)
Helping others who are in difficulty		Cut points:	Low = 4–6; Medium = 7–10; High = 11–14
Reducing pain and suffering in the world		LEADERSHIP (6), $\alpha = .73$	
Helping to promote racial understanding		Rate yourself on the following trait as compared with the average person your age:	
Becoming involved in programs to clean up the environment		Self-rated social self-confidence	1 = lowest 10%, to 5 = highest 10%
Becoming a community leader		Self-rated understanding of others	
Influencing social values		Self-rated self-understanding	
Influencing the political structure		Self-rated leadership ability	
Cut points:	Low = 8–14; Medium = 15–21; High = 22 thru high	Self-rated public speaking ability	
PSYCHOLOGICAL WELL-BEING (4), $\alpha = .67$		Self-rated cooperativeness	
Since entering college, indicate how often you:	1 = not at all, to 3 = frequently	Cut points:	Low = 6–17; Medium = 18–22; High = 23–30
Felt overwhelmed by all I had to do	(reverse coded)		
Felt depressed	(reverse coded)		

APPENDIX B.

CSBV Survey and HERI Faculty Survey Items Constituting Factors
Used in Independent Variables

Factor Items	Coding
Items taken from College Students' Beliefs and Values (CSBV) 2004 and 2007 Surveys	
RELIGIOUS STRUGGLE (7 Items), $\alpha = .77$	
Indicate the extent to which each of the following describes you:	1 = not at all, to 3 = to a great extent
Feeling unsettled about spiritual and religious matters	
Feeling disillusioned with my religious upbringing	
During the past year, please indicate how often you have:	1 = not at all, to 3 = frequently
Struggled to understand evil, suffering, and death	
Felt angry with God	
Questioned [my] religious/spiritual beliefs	
Felt distant from God	
Disagreed with [my] family about religious matters	
RELIGIOUS ENGAGEMENT (9), $\alpha = .88$	
Since entering college, indicate how often you:	1 = not at all, to 3 = frequently
Attended a religious service	
Attended a class, workshop, or retreat on matters related to religion/spirituality	
How often do you engage in the following activities?	1 = not at all, to 6 = daily
Reading sacred texts	

Factor Items	Coding
Religious singing/chanting	
Other reading on religion/spirituality	
Prayer	
Do you pray?	1 = no 2 = yes
During the past year, how much time did you spend during a typical week in prayer/meditation:	1 = none, to 8 = over 20 hours
How many of your close friends:	1 = none, to 4 = all
Go to church/temple/other house of worship	
EQUANIMITY (5), $\alpha = .72$	
Since you entered college, indicate how often you have:	1 = not at all, to 3 = frequently
Been able to find meaning in times of hardship	
Felt at peace/centered	
Rate yourself on the following trait as compared with the average person your age:	1 = lowest 10%, to 5 = highest 10%
Feeling good about the direction in which my life is headed	
Being thankful for all that has happened to me	
Seeing each day, good or bad, as a gift	

Appendix continues

APPENDIX B. *continued*

Factor Items	Coding
SPIRITUAL QUEST (8), $\alpha = .82$	
Indicate the extent to which you engage in the following activities:	1 = not at all, to 3 = to a great extent
Searching for meaning/purpose in life	
Having discussions about the meaning of life with my friends	
How many of your close friends:	1 = none, to 4 = all
Are searching for meaning/purpose in life	
Indicate the importance to you personally of:	1 = not important, to 4 = essential
Finding answers to the mysteries of life	
Attaining inner harmony	
Seeking beauty in my life	
Developing a meaningful philosophy of life	
Becoming a more loving person	
2004 ALCOHOL (2), $\alpha = .70$	
Frequency of drinking beer in the past year	1 = not at all, to 3 = frequently
Frequency of drinking wine or liquor in the past year	1 = not at all, to 3 = frequently
2004 INTELLECTUAL SELF-CONCEPT (5), $\alpha = .64$	
Self-ratings:	1 = lowest 10%, to 5 = highest 10%
Academic ability	
Writing ability	

Factor Items	Coding
Intellectual self-confidence	
Math ability	
Drive to achieve	
2007 FACULTY ENCOURAGED QUESTIONS OF MEANING AND PURPOSE (3 ITEMS), $\alpha = .85$	
Professors encouraged discussions of religious/spiritual matters	1 = not at all, to 3 = frequently
Professors encouraged personal expression of spirituality	1 = not at all, to 3 = frequently
Professors acted as a spiritual role model	1 = not at all, to 3 = frequently
Items taken from UCLA HERI 2004–2005 Faculty Survey	
FACULTY FOCUS ON SPIRITUALITY (3), $\alpha = .97$	
Faculty mean: Colleges should enhance spiritual development	
Faculty mean: Colleges should facilitate search meaning/purpose	
Faculty mean: Colleges should be concerned with spiritual development	
FACULTY MEAN: CIVIC MINDED PRACTICE (6), $\alpha = .70$	
Faculty mean: Collaborated with the local community in research/teaching	
Faculty mean: Used scholarship to address local community needs	
Faculty mean: Engaged in public service/professional consulting without pay	
Faculty mean: Community or public service	
Faculty mean: Taught a service learning course	
Faculty mean: Advised student groups involved in service	

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