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Understanding the developmental issues first-time college students face is critical for scholars and educators interested in learning and development. This purpose of this study was to investigate the differential impact of first-year college experiences on the moral reasoning development of 1,469 students in moral transition versus those in moral consolidation. Results demonstrated that developmental gains in moral reasoning varied as a function of students' moral phases; some students may be more developmentally ready to face and resolve the educational challenges that often characterize first-year programs and curricula, such as diversity courses. The results have implications for educators and moral psychologists.

Understanding college and its impact on moral development remains a central concern of the federal government, accrediting agencies, and national associations charged with articulating educational objectives for institutions of higher education. For example, associations responsible for representing the interests of scholars and researchers in higher education have prioritized moral education by charging institutions with "developing character, conscience, citizenship, tolerance, civility, and individual and social responsibility in our students," and suggesting these "be part of the standard equipment of our graduates, not options" (National Association of State Universities and Land-Grant Colleges, 1997, pp. 12-13). Another example includes the 2008 adoption of the Educational Policy and Accreditation Standards (EPAS) by the Board of Directors of the Council on Social Work Education (CSWE), who infused moral criteria into their identification of ten competencies used for systematically evaluating the effectiveness of social work curricula and practice:

> These competencies include . . . such activities as application of ethical principles to guide professional practice [and] advance[ment of] human rights and social and economic justice. (Holloway, Black, Hoffman, & Pierce, 2009, p. 2)

Despite these national calls for postsecondary education to take more interest in moral development, very few studies have adopted a college impact approach for investigating the role universities play in facilitating growth in moral reasoning; as King and Mayhew (2005) note,

> Given the complexity of variables that play a role in students' moral development, our first recommendation is that larger scale studies be conducted utilizing more sophisticated statistical techniques to better discern factors that lead to the development of moral reasoning. Few of the studies here partialled out the effects of student demographic, pedagogical, or curricular covariates. (p. 424)

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Even fewer have examined how the relationship between college-going and moral reasoning development have differed based on the consistency with which students used cognitive strategies for reasoning when faced with a series of moral dilemmas.

Moral reasoning is "a psychological construct that characterizes the process by which people determine that one course of action in a particular situation is morally right and another course of action is wrong" (Rest, Thoma, & Edwards, 1997, p. 5). Its examination involves not only understanding the cognitive strategies individuals adopt when faced with moral dilemmas, but how use of these strategies varies among individuals in different moral phases (i.e., consolidation and transition, respectively). Understanding how college students process information when faced with moral dilemmas empowers educators to create classroom environments that better prepare students for their ethical responsibilities as citizens within their campus communities and larger social contexts. This article describes a series of analyses from a multi-institutional pretest–posttest longitudinal study that compares the impact of course-taking behaviors, cocurricular experiences and educational practices on the moral reasoning development for first-year students in different moral phases (i.e., transition and consolidation, respectively). We now turn to the theoretical framework and previous literature that influenced our analytical decisions and subsequent discussion of the findings.

THEORETICAL OVERVIEW

The processes individuals use when faced with moral dilemmas change over time, with each major stage representing "a qualitative reorganization of the individual's pattern of thought, with each new reorganization integrating within a broader perspective the insights achieved at the prior stages" (Colby & Kohlberg, 1987, p. 5). As individuals progress through stages, their concepts of justice expand from egocentric to societal: fairness expands from a system that serves oneself (*preconventional*), to one that serves one's close friends and family (*conventional*), to one that also serves larger communities, including strangers (*postconventional*).

Originated by Snyder and Feldman (1984) and applied to moral psychology by Rest, Narvaez, Bebeau, and Thoma (1999), moral phases capture the underlying psychological mechanisms associated with readiness and progression through stages of moral reasoning development; individuals function within two phases during any existing stage. In the consolidated phase, individuals use consistent patterns of reasoning when engaging external stimuli. In the transition phase, individuals use a variety of reasoning patterns within a given stage or sometimes between stages when making meaning of environmental cues. For development to occur, individuals progress through consolidated and transitional phases within and between every given stage.

Several authors (Derryberry & Thoma, 2005; Mayhew, Hubbard, Finelli, Harding, & Carpenter, 2009; Rest, Narvaez, Bebeau, & Thoma, 1999; Thoma & Rest, 1999; Walker, Gustafson, & Hennig, 2001; Walker & Taylor, 1991) have applied tenets of the consolidation/transition model to Kohlbergian notions of moral reasoning development. Collectively, these authors have suggested that individuals, when faced with a series of moral dilemmas, adopt reasoning patterns that reflect their likelihood of being consolidated within a particular stage, transitioning between levels that comprise that stage, or transitioning between stages. While transitional moral reasoners tend to be more open to suggestion, susceptible to change, and prefer using situational or environmental cues specific to

a given context when making moral decisions, consolidated moral reasoners are more context-independent, consistent in how they process information when reasoning about moral issues (Mayhew et al., 2009).

Literature Review

In their comprehensive review of research examining the impact of college on moral reasoning development, King and Mayhew (2005) used Astin's I-E-O model for organizing the literature. Based on their precedent, we adopted a similar strategy for organizing the literature used to justify variables for consideration in our final models and for informing the study's conceptual framework. Here, *inputs* refer to student characteristics (e.g., high school grade point average, race) that contribute to students' levels of moral reasoning. *Environments* include general collegiate contexts and specific educational practices that influence the development of moral reasoning during the college years. The *outcome* for this analysis is moral reasoning at the end of the first-year in college.

INPUTS

The inputs exerting influence on moral reasoning development consisted of a variety of pre-college characteristics, including gender, race, political orientation, aptitude, and cognitive ability.* We included these variables as demographic controls in our models designed to explain college's impact on moral reasoning development and how students' moral phases explained this relationship.

Gender. Of the nearly fifty studies investigating the relationship between gender and moral reasoning development, the majority, including two meta-analyses performed by Thoma (1986) and Walker (1984), respectively, revealed that undergraduate females reported higher moral reasoning scores than males. This finding has served to refute claims of potential gender bias in Kohlbergian approaches to the study of moral reasoning development (see Walker, 2006).

Race. Findings on race and moral reasoning were mixed, with some studies noting differences between self-identified race and moral reasoning scores and others reporting no such differences. Common to these studies was their peripheral examination of this relationship, as most embedded race into impact models designed for other purposes (see Johnson, Insley, Motwani, & Zbib, 1993; Loviscky, 2000; Murk & Addleman, 1992). As a result, many findings related to race may have been influenced, if not obscured, by other related variables of interest, like negative interaction with diverse peers (see Mayhew & Engberg, 2011) or participation in a diversity course (see Hurtado, Mayhew, & Engberg, 2003). Another problem with embedding questions concerning race and moral reasoning within other lines of inquiry involves statistical power, as sample sizes needed to draw reasonable conclusions about racial identification and moral reasoning are often too small to make any claims about subgroup differences (see Gongre, 1981; Locke & Tucker, 1988).

Political Identification, Aptitude, and Cognition. Studies investigating the relationship between moral reasoning and political identification, aptitude, and cognition, respectively,

* Other input variables demonstrated for exerting influence on moral reasoning development include: educational level, age, and college major (see King & Mayhew, 2005, for a detailed review of these studies); however, as a study of first-year, traditionally aged students, there were virtually no variations in ages or educational levels within our sample, so we did not include these variables as potential covariates. Similarly, many of these first-year students were predominantly enrolled in general education requirements with undeclared or undecided majors; therefore, we also excluded college major from consideration in our final model.

began as psychometric explorations into the validity of the Kohlbergian approach to measuring moral reasoning (see Barnett, Evans, & Rest, 1995; Emler, Palmer-Canton, & St. James, 1997; Emler, Renwick, & Malone, 1983; Fisher & Sweeney, 1998; Narvaez, Getz, Rest, & Thoma, 1999). Results from these studies suggest: (a) that moral reasoning is conceptually distinct from political orientation, verbal ability, and cognition and (b) that level of cognition may be a necessary but insufficient condition for the development of moral reasoning.

Environments

A series of studies have investigated the effects of specific collegiate contexts on the development of moral reasoning. First, we review the research on the following specific curricular contexts, patterns of course-taking behavior and educational practices, and then follow with a summary of studies examining the role of cocurricular involvement on moral reasoning development.

Course-Taking Behaviors. A number of studies have investigated how enrollment in certain college courses[†] influences moral reasoning development. Most of the research conducted on the types of curricular content that influenced moral reasoning focused on courses with explicit moral content (e.g., ethics courses) and how these courses provided students with a context for developing moral reasoning (Armstrong, 1993; Bonawitz, 2002; Mayhew & King, 2008; Ponemon,1993). Others have focused on courses with a more implied moral focus, such as courses emphasizing diversity and social justice, including those with pedagogies related to service-learning (Adams & Zhou-McGovern, 1994; Boss, 1994; Hudec, 2002; Hurtado et al., 2003; Katz, 2001; Mayhew & Engberg, 2010; Mayhew & King, 2008). Results from these studies are mixed: some have been effective for helping students make moral gains, while others have not.

For the purposes of this study, we investigated 4 course-taking patterns for their potential influence on moral reasoning development. These included enrollment in: (a) diversity-related courses, (b) traditional arts and science courses, (c) courses that facilitated students' understanding of the historical, political, and social connections between past events, and (d) courses that furthered students' understanding of the connections between intended career and its effect on society.

To what can the effectiveness of these experiences be attributed? Several studies have attempted to disentangle the component parts of specific educational experiences in an effort to understand how educational practices influenced students' capacities to reason about moral issues.

Educational Practices. Several studies have examined how exposure to educational practices affected moral reasoning development. These studies attempted to examine classroom-based and nonclassroom-based practices and their role in helping students achieve moral reasoning gains. An overview of these studies suggests that effective practices for spurring moral reasoning development included, but were not limited to, creating opportunities that optimized students' potential for reasoning at stages more sophisticated than their own (see Abdolmohammadi Gabhart, & Reeves, 1997; Carey, 1988; King & Mayhew, 2002, 2005; Mayhew & King, 2008; McNeel, 1994; Nichols & Day, 1982; Rest, 1987, 1988; Rest & Deemer, 1986). Such a finding often serves as the theoretical rationale linking faculty–

[†] It should be noted that over 60 studies (Rest, Narvaez, Bebeau, & Thoma, 1999) have examined the effectiveness of curricular interventions on the development of moral reasoning.

student interaction with developmental gains in moral reasoning.

For the purposes of this study, we included two educational practices for their potential influence on moral reasoning development. Grounded in many studies investigating the impact of college on students (see Astin, 1993; Pascarella & Terenzini, 2005), each considered practice assumed that the faculty–student relationships were critical for spurring developmental gains. The first was a measure of effective teaching, including student perceptions of the quality of their interactions with faculty. The second assessed students' perceptions of their courses as challenging, with particular emphases on faculty's expectations for quality work.

In addition to these curricular contexts, we also examined how cocurricular programs and activities influenced moral reasoning development.

Cocurricular Contexts. A series of studies have examined how participation in cocurricular activities influenced moral reasoning development. Three studies (see Cohen, 1982; Kilgannon & Erwin, 1992; Sanders, 1990) examined the influence of membership in Greek organizations on the development of moral reasoning. The others investigated moral reasoning development as it related to the positive impact of peer relationships that engendered empathy, perspective-taking, and cognitive disequilibrium (Abdolmohammadi et al., 1997; Carey, 1988; Endicott, Bock, & Narvaez, 2003; Mayhew & King, 2008; Nichols & Day, 1982; Rholes, Bailey, & McMillan, 1982; Thoma & Ladewig, 1993), and the negative impact of these relationships that possibly led to stereotyping (Kilgannon & Erwin, 1992; Mayhew & Engberg, 2010). Providing empirical support for the current investigation, these studies guided us to consider examining two variables for their potential influence on explaining moral reasoning development: (a) the quantity and quality of students' diversity experiences and (b) the degree to which students have had meaningful interactions with each other.

SUMMARY

From the literature, we learned that a number of inputs and environments exerted influence on developmental gains in moral reasoning. Less clear was the role that moral phases played in shaping our understanding of the impact of college on moral reasoning development. Part of the reason for this dearth of knowledge was in the relative newness of moral phases as areas of study in their own right; most of the literature related to these phases described their theoretical origins, alignment with better known theories of moral reasoning development, and how consolidation and transition phases ought be measured (see Derryberry & Thoma, 2005; Thoma & Rest, 1999; Walker et al., 2001; Walker & Taylor, 1991). As a result, we developed our conceptual framework using empirical work relating college-going to moral reasoning development as our guide.

Conceptual Framework

The conceptual framework for this study is an adaptation of the Input-Environment-Output model (Astin, 1993). Our series of input variables included: gender, race, tested precollege academic preparation (i.e., ACT score), cognitive motivation, political orientation, and precollege moral reasoning score (Time 1 moral reasoning). Our environment variables wee four course-related behaviors (i.e., number of diversity courses; number of traditional arts and science courses; the extent to which student agrees that courses have helped him/her to understand the historical, political, and social connections of past events; and the extent to which student agrees that courses have helped him/her to see the connections between intended career and how

it affects society), and two variables measuring cocurricular experiences (the quantity and quality of students' diversity experiences, the degree to which students have had meaningful interactions with each other). We also included another construct measuring perceptions of and experiences with educational practices (i.e., the degree to which students have been exposed to good teaching and quality faculty interactions, the degree to which student have been academically challenged). Our outcome was end-of-first-year moral reasoning score (Time 2 moral reasoning).

METHOD

The purpose of this study was to compare the impact of course-taking behaviors, educational practices, the mediated influence of course-taking behaviors through educational practices, and cocurricular experiences on the moral reasoning development of first-year students in moral consolidation with those in moral transition. This study is one of the first to examine moral reasoning developmental gains among first-year students; to deconstruct the college experience into those curricular, cocurricular, and teaching practices potentially responsible for these gains; and to situate these gains within theoretical frameworks useful for understanding the consistency with which students approach moral dilemmas.

Hypotheses and Research Question

When compared to those in moral transition, we expect that students in moral consolidation will be less influenced by the college environment, and subsequently will show fewer developmental gains in moral reasoning as a result of being exposed to courses, cocurricular activities, and good teaching practices. Consequently, we expect that model parameter estimates for students in transition will be lower than those in consolidation. As such, results of this study will also help answer the question, How do moral reasoning development phases affect the impact college exerts on the moral reasoning development of first-year students?

Institutional Sample

The institutional sample consisted of incoming first-year full-time students at 19 four-year and two-year colleges and universities from the Northeast, Midwest, Southeast and Western regions of the United States. We selected institutions from a pool of over 60 based on their applications to be part of the Wabash National Study of Liberal Arts Education (WNS). WNS is an ongoing, multi-institutional longitudinal research study examining the effects of liberal arts colleges and liberal arts experiences on the cognitive, democratic, and personal outcomes conceptually associated with a liberal arts education. We intentionally diversified the institutional sample to represent differences in type and control, size, location, and patterns of student residence. Due to WNS's focus, liberal arts colleges were purposefully overrepresented.

The selection technique for the 2006 WNS cohort produced an institutional sample with a wide range of academic selectivity, from highly selective to open admission institutions. Undergraduate enrollment also varied substantially, from institutions with entering class size between 3,000 and 6,000, to those with entering class size between 250 and 500. According to the 2007 Carnegie Classification of Institutions, 3 of the participating institutions were research universities, 3 were regional universities that did not grant the doctorate, 2 were two-year community colleges, and 11 were liberal arts colleges.

Student Sample

The sample consisted of full-time students who were first-year undergraduates at institutions

participating in the WNS in the fall of 2006. Students received letters from their institution inviting them to participate in a national longitudinal study examining how a college education affects students with the goal of improving the undergraduate experience. We selected the initial sample using a two-pronged sampling strategy. For students at the larger institutions, invitation letters were sent to students randomly from the incoming first-year class. The only exception was at the largest institution where the invitation letters were sent randomly to first-year students in the College of Arts and Sciences. The entire incoming first-year class at each of liberal arts colleges was invited to participate in the study.

Four thousand five hundred and one students from an invited sample of 16,570 completed the first 90-100-minute data collection in the fall of 2006. The 27.0% response rate reflects a lower bounds estimate of the actual response rate as ACT, the group in charge of the data collection, projects approximately one half to one third of the drawn sample did not receive the sent invitation. Three thousand eighty-one students participated in the spring 2007 follow-up data collection for a 68.5% response rate of those who participated in the first data collection, representing 16.2% of the total population of first-year full-time students at the 19 institutions. Due to time needed to complete the instruments and the recognition of survey fatigue (Groves et al., 2004), participants completed one of two cognitively demanding instruments. Half of the sample took the critical thinking module of the Collegiate Assessment of Academic Proficiency (CAAP; American College Testing Program [ACT], 1991) while the other half completed the Defining Issues Test, Version 2 (DIT2; Rest, Narvaez, & Thoma, 1999) at each wave of data collection. Because of our choice to use this matrix sampling collection approach, approximately 50% of students who returned for the second data collection completed the DIT2, resulting in useable data for 1,469 students.

Of the students in our analytic sample 66% were female; and 80% identified as White, 8% identified as Asian/Asian American, 5% identified as African American, 5% identified as Hispanic, and the remaining 2% identified as another race, including Native American, non-US-resident, or unknown. On average, students' precollege tested academic preparation, defined as ACT or ACT equivalent, was 26.8 (SD = 4.33). Students tended to be highly motivated and identified politically a little left of middle-of-the-road.

Data Collection and Variables

A battery of assessments was administered for each data collection period. During the first data collection phase, we administered a series of instruments measuring demographic, background, and precollege characteristics as well as outcomes assessing cognitive, democratic, and personal development, including the measure of moral reasoning and need for cognition specifically discussed in this study. During the second data collection period, we administered the same outcome measures in tandem with others assessing college student experiences.

Dependent Variable. We assessed moral reasoning with the Defining Issues Test 2 (DIT2; Rest, Narvaez, & Thoma, 1999). Through a series of ratings and rankings and resultant weighted algorithm, the DIT2 measures the degree to which students use principles to guide their decision-making when faced with a moral dilemma. Although the DIT2 yields several indices for use in determining moral reasoning development, we used the composite N2 score for the purposes of this study. The N2 score is comprised of two parts: (a) the degree to which respondents prioritize postconventional items—a demonstration

of more sophisticated thinking; and (b) the degree to which respondents reject simplistic or biased solutions (Bebeau & Thoma, 2003). Higher N2 scores reflect an individual's increased capacity for reasoning about moral issues based on a system of fairness that serves the public good; lower N2 scores tend to reflect reasoning about moral issues from a self-serving understanding of fairness. The reliability for the N2 score ranges from .77 to .81 (Rest, Narvaez, Bebeau, & Thoma, 1999; University of Minnesota, n.d.). A substantial body of evidence supports the validity of the Defining Issues Test and the DIT2 in predicting principled moral behavior such as resistance to the following: cheating, pressure by peers, and oppressive authority (see Pascarella and Terenzini, 1991, 2005, for summaries of this literature and citations to the original studies).

Independent Variables. The DIT2 also provides information on the degree to which students exhibit a *consolidation phase* versus a *transition phase* of moral reasoning. Students who are in a consolidation phase are more likely to use consistent cognitive strategies for reasoning when faced with a series of moral dilemmas. On the contrary, students who are in transition phases are less likely to use consistent reasoning strategies across moral dilemmas. Although not an independent variable in the traditional sense, the consolidation versus transition phase served as the basis for splitting the sample. For analysis purposes, we subdivided the analytic sample of 1,469 into two groups: those who were in a consolidation phase (n = 615) and those who were identified as being in a transition phase (n = 854).

Educational Experiences. The independent variables of interest in this study came from student responses on the National Survey of Student Engagement (NSSE; Kuh, 2001) and the WNS Student Experiences Survey (WSES), collected during the second wave of data collection. These variables represent students' course-taking patterns and integration of course material into other contexts, curricular experiences, and cocurricular experiences.

We developed measures of students' course-taking patterns from the WSES. This survey asked students to report how many courses they had taken in their first year of college that focused on gender studies, ethnic/cultural studies, and/or social justice issues. Because few students took more than one course in their first year that focused on these issues, we created a dichotomous measure of which 59% of students in the transition phase and 66% in the consolidation phase reported taking at least one course that met our criteria. Students also reported how many courses they had taken in the traditional arts and science disciplines (e.g., arts and humanities, social sciences, natural sciences, and math) during their first year in college. We simply summed the responses to the constituent items to develop the liberal arts coursework scale.

We also used items from the WSES to measure students' integration of course material into other contexts. Specifically, we were interested in the extent to which students agreed that their courses helped them to understand the historical, political, and social connections of past events; and how much these courses helped them to see the connections between their intended career and how it affects society. Responses were on a 5-point Likert-type scale and ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

We used selected items from both the NSSE and the WSES to construct scales of student experiences in college. Taken together, items from these surveys formed scales that measured several aspects of the college student experience, including curricular and cocurricular dimensions.

We then conducted a second-order confir-

matory factor analysis on these scales, which yielded a forced five construct solution. Using the framework developed by Pascarella and colleagues (2004, 2006, 2007), we created several megascales. We computed the score for each megascale by taking the mean of the individual standardized items for those participants who had responded to at least 60% of the items. Theoretical ties existed between moral reasoning and four of these constructs, two of which are curricular and deal with the academic experience facilitated by the faculty and two of which are cocurricular. The two curricular-related scales include the degree to which students have been exposed to good teaching and quality faculty interactions (α = .92), and the degree to which students have experienced challenging classes and high faculty expectations (α = .82).[‡] The cocurricular scales include, the quantity and quality of diversity experiences (α = .80), and the degree to which students have had meaningful interactions with each other (α = .85). We provide items, factor loadings, and reliabilities for these four scales in Table 1.

Controls. Framing our study using Astin's I-E-O model, we accounted for a host of students' background and precollege characteristics that research has found to be related to moral reasoning. In terms of students' demographic characteristics, we controlled for students' gender (female was the reference category) and race/ethnicity (White was the reference group). We also took into account a number of precollege characteristics including students' tested precollege academic preparation (defined as ACT or ACT equivalent), and political views with one denoting a perspective to the "far left" and five associated with the "far

[‡] Due to model specifications, we chose not to use the entire construct of academic challenge, which resulted from the second-order factor analysis. We intentionally limited our focus to the challenging classes and faculty expectations subscale.

TABLE 1.
Factor Loadings and Reliabilities for Scales

Factor and Survey Items	Scale Reliability	Factor Loading
Good Teaching and High Quality Interactions With Faculty (megascale)	.92	
Faculty interest in teaching and student development		.86
Overall exposure to clear and organized instruction		.81
Quality of nonclassroom interactions with faculty		.75
Prompt feedback		.74
Challenging Classes and High Faculty Expectations Scale	.82	
Influential Interactions With Peers (megascale)	.85	
Positive peer interactions		.77
Cocurricular involvement (single item)		.67
Diversity Experiences (megascale)	.80	
Meaningful interactions with diverse peers		.83
Diversity experiences		.69

TABLE 2.

Operational Definitions and Descriptive Statistics for Variables in Model

	Operational Definition	Mean		*SD*		Min		Max	
		T[a]	C[a]	T	C	T	C	T	C
Gender									
Male		0.37	0.31	NA	NA	0.00	0.00	1.00	1.00
Race[b]									
Asian Pacific Islander		0.09	0.07	NA	NA	0.00	0.00	1.00	1.00
African American		0.06	0.03	NA	NA	0.00	0.00	1.00	1.00
Latino/Hispanic		0.05	0.04	NA	NA	0.00	0.00	1.00	1.00
Other Race		0.02	0.03	NA	NA	0.00	0.00	1.00	1.00
White		0.77	0.84	NA	NA	0.00	0.00	1.00	1.00
Precollege Academic Controls									
Academic Ability	ACT or ACT equivalent	25.78	28.23	4.30	3.94	14.00	15.00	36.00	36.00
Need for Cognition Score[a]	High score denotes greater need to engage and enjoyment of cognitive activities.	3.39	3.69	0.61	0.56	1.22	1.89	4.83	4.94
Political Orientation	Student's characterization of his/her political views, ranging from 1 = Far left; 5 = Far right	2.87	2.78	0.88	0.97	1.00	1.00	5.00	5.00
DIT2 N2 Pretest	Reflects both the acquisition of more sophisticated moral thinking.	29.72	47.11	10.73	12.83	0.28	2.07	54.66	80.06
Course–Taking Behaviors									
Diversity–Related Courses	Proportion of students taking at least one diversity course (women's/gender studies, race, issues of equality and/or social justice)	0.59	0.66	NA	NA	0.00	0.00	1.00	1.00
Number of Traditional Arts & Science Courses	Total number of courses student has taken in the traditional arts and sciences disciplines (Fine Arts, Humanities, & Languages; Mathematics, Statistics, Computer Science; Natural Sciences; and Social Sciences)	6.40	7.00	1.98	1.75	0.00	0.00	14.00	13.00

table continues

TABLE 2. *continued*

	Operational Definition	Mean		*SD*		Min		Max	
		T[a]	C[a]	T	C	T	C	T	C
Connects Course Material to Historical Events	The extent to which student agrees that courses have helped him/her to understand the historical, political, and social connections of past events, ranges from 1 = strongly disagree; 5 = strongly agree.	3.66	3.76	0.91	0.93	1.00	1.00	5.00	5.00
Connects Course Material to Career and Society	The extent to which student agrees that courses have helped him/her to see the connections between intended career and how it affects society, ranges from 1 = strongly disagree; 5 = strongly agree.	3.52	3.48	0.97	1.02	1.00	1.00	5.00	5.00
Curricular Experiences									
Good Teaching & High–Quality Interactions With Faculty Scale	Scale measuring the extent student reported experiencing clear, well–organized instruction and quality non–classroom interactions with faculty. See Table 1 for details.	–0.03	0.07	0.59	0.59	–2.30	–2.23	1.40	1.40
Challenge Classes and High Expectations Scale	Scale measuring the extent student reported classes challenged their thinking and faculty held high expectations. See Table 1 for details.	–0.04	0.06	0.71	0.73	–2.32	–2.36	1.49	1.49
Cocurricular Experiences									
Diversity Experiences Scale	Scale measuring the extent student reported engaging in diversity–related conversations and workshops. See Table 1 for details.	–0.05	0.05	0.60	0.60	–1.29	–1.39	1.78	1.84
Interactions With Peers Scale	Scale measuring the extent student reported positive interactions with peers and frequency of engaging in cocurricular activities. See Table 1 for details.	0.004	0.02	0.65	0.67	–2.57	–2.34	1.14	1.27
Dependent Measure									
DIT2 N2 Posttest		36.31	49.05	13.44	13.52	1.77	2.75	69.38	81.37

a T reflects the weighted descriptive statistics for students within transition phases (n = 854) while C reflects students within consolidation phases (n = 615).

[b] Percentages for race may not sum to 100% due to rounding.

right." The most powerful control in our analysis was the inclusion of students' N2 score obtained from the first wave of data collection (see Astin & Lee, 2003, for a thorough discussion of the statistical power in college impact studies using a pretest–posttest design).

Finally, we measured cognitive motivation via administration of the Need for Cognition Scale (NCS; Cacioppo, Petty, & Kao, 1984) that measures an individual's tendency "to engage in and enjoy effortful cognitive activity" (Cacioppo, Petty, Feinstein, & Jarvis, 1996, p. 197). High-scoring individuals enjoy thinking abstractly and make more complex attributions for human behavior while low-scoring individuals tend to dislike such thinking and employ more simplistic cognitive heuristics and social comparisons to make sense of their world. The reliability of the NCS ranges from .83 to .91 in undergraduate student samples. The measure has been associated positively with the respondents' ability to generate complex attributions for human behavior and engage in evaluative responding. Other validity studies have found the NCS to be related negatively with authoritarianism, need for closure, and personal need for structure (Cacioppo et al., 1996). We present full operational definitions of all variables in the model in Table 2.

Analysis

We performed a series of descriptive and exploratory analyses before constructing our analytic models. From a series of correlation procedures, we learned that the two measures of educational practices—good teaching/quality interactions with faculty and academic challenge and high expectations—were highly correlated at $r = .56$. As a result, we created two models assessing the effects of curricular practices on moral reasoning development, one for each of the practice scales. All other analyses indicated that assumptions for analyses were met, with each variable meeting established criteria for achieving normality, independence, etc.

Using college impact research as our conceptual and analytical guide, we used linear regression techniques to first estimate the net effects of students' background and precollege characteristics on their posttest N2 score (Model 1). We then included the pretest to our predictive model (Model 2). To measure the effects of the in-class academic experience, we entered variables representing course-taking patterns and the integration of course material across contexts (Model 3). Next, we added, each of the curricular practice scales in separate models (Models 4 and 5), which also allowed us to estimate what portion of the effect of the course-taking pattern and integration variables on moral reasoning development is mediated by the curricular practices (Alwin & Hauser, 1975). To estimate the net effects of cocurricular experiences on student gains in moral reasoning, we added the two scales measuring diversity experiences and meaningful interactions with peers to the background/precollege characteristics and pretest model (Model 6). In summary, controlling for differences in the demographic, and pretest covariates, we isolated the amount of variance explained in the criterion by three constructs of interest: course-taking patterns and integration, educational curricular practices, and cocurricular experiences. Because our interest was in comparing the effects of our independent variables across the consolidation versus transition phase, we ran each series of models on each subsample.

We standardized all continuous variables in the model. This allows regression parameter estimates to be interpreted as effect sizes (i.e., a one unit change in the predictor variable yields a "b" standard deviation change in the outcome variable). Effect sizes have the added benefit of enabling readers to compare the

relative magnitude of all predictor variables, including dichotomous variables.

The research questions guiding this study focus on students as the unit of analysis. Our interest lies in examining how the influence of course-taking behaviors and integration across contexts, educational practices and cocurricular experiences on students' moral reasoning development differs for students in consolidation versus transition phases. We began this analysis by employing analytic strategies to account for the nested nature of the data, with students nested within institutions (Bryk & Raudenbush, 1992; Ethington, 1997; Raudenbush & Bryk, 2001). The between-institution variance was fairly low for the transition subsample, Intraclass Correlation Coefficient (ICC) = .087, and only slightly higher for the consolidation subsample, ICC = .129.

Because the focus of the paper was in comparing the explained variance in models across subsamples of individuals in the consolidation and transition phases, we chose to use ordinary least squares regression in an effort to be consistent in our interpretations. This choice has the effect of potentially underestimating the standard errors for the consolidation subsample. To account for the likelihood of an increased Type 1 error, we note only significant effects at the $p < .01$ level for each subsample.

Limitations

There are several limitations to this study that limit the generalizability of our findings. As with any longitudinal study, not all students who participated in the first wave of data collection returned for the follow-up; thus, the longitudinal design, arguably one of the study's greatest strengths, is also a limitation. Although the 68.5% persistence rate from the first to second wave of data collection is consistent with rates from other large longitudinal college impact studies (see, for example, the National Study of Student Learning, in Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1998), sample attrition remains a limitation to the study. It is plausible that the students who dropped out of the study may have responded in systematically different ways than those who remained. Additionally, although the institutions in the sample differed considerably in terms of type, control, and geographic region, we did not select these institutions at random but from a pool of those that responded to a national call to participate. Moreover, consistent with Porter and Whitcomb's (2005) findings that women participate in surveys at rates greater than men and with similar findings noting that women attend colleges and universities at greater rates than men (National Center of Education Statistics, 2009), women are overrepresented in the sample; thus, one should use caution in generalizing our findings to the population of postsecondary education institutions and students in the United States. Finally, as a multi-institutional study spanning 19 institutions, we were not able to ask questions about specific experiences that may have exerted an effect on moral reasoning development; for example, although we have information on course-taking behaviors (e.g., taking a diversity course), we did not estimate dynamics idiosyncratic to the particular course (e.g., how the course was instructed).

RESULTS

The primary focus of this analysis was to examine the differential impact of first-year college experiences on moral reasoning scores for students in consolidation versus transition phases, net of other factors including students' moral reasoning before college. We discuss the results in a comparative manner for each of the 6 models presented in Table 3.

TABLE 3.

Net Effects on Moral Reasoning (DIT2 N2 Score) at the End of the First Year of College: A Comparison of Transition and Consolidation Phases

		Transition Phase (n = 854)				Consolidation Phase (n = 615)			
		Adj. R^2	Sig. Adj. $R^2\Delta$	Effect Size	*SE*	Adj. R^2	Sig. Adj. $R^2\Delta$	Effect Size	*SE*
Model 1	**Background Characteristics**[a]	0.222				0.254			
Model 2	Pretest	0.363	$p < .001$			0.480	$p < .001$		
	DIT2 pretest score (std.)			0.506	0.037[c]			0.563	0.035[c]
Model 3	Course–Taking Patterns and Behavior	0.372	$p < .05$			0.480	NS		
	Has taken a diversity–related course			0.129	0.052*			–0.002	0.059
	Number of traditional arts & science courses (std.)			–0.026	0.026[c]			–0.003	0.032
	Connects course material to historical events (std.)			0.061	0.026*			0.049	0.028
	Connects course to career/society (std.)			–0.025	0.026			–0.041	0.027
Model 4	Ed. Practices I (Model 3 + Teaching Practice)	0.372	NS			0.482	NS		
	Has taken a diversity–related course			0.126	0.052*			–0.0006	0.058
	Number of traditional arts & science courses (std.)			–0.029	0.026			–0.0006	0.032
	Connects course material to historical events (std.)			0.054	0.027*			0.036	0.029
	Connects course to career/society (std.)			–0.035	0.027			–0.054	0.028
	Good teaching & quality interactions with faculty scale (std.)			0.032	0.029			0.053	0.031

table continues

TABLE 3. *continued*

		Transition Phase (n = 854)				Consolidation Phase (n = 615)			
		Adj. R^2	Sig. Adj. $R^2\Delta$	Effect Size	*SE*	Adj. R^2	Sig. Adj. $R^2\Delta$	Effect Size	*SE*
Model 5	Ed. Practices II (Model 3 + Challenge)	0.372	NS			0.480	NS		
	Has taken a diversity–related course			0.114	0.052*			–0.004	0.059
	Number of traditional arts & science courses (std.)			–0.025	0.026			–0.003	0.032
	Connects course material to historical events (std.)			0.048	0.027			0.037	0.030
	Connects course to career/society (std.)			–0.033	0.026			–0.045	0.028
	Challenge class & high faculty expectations (std.)			0.049	0.028			0.03	0.030
Model 6	Cocurricular Experiences (Model 2 + Cocurricular)	0.365	NS			0.479	NS		
	Diversity experiences (std.)			0.034	0.027			0.006	0.029
	Influential interactions with peers (std.)			0.034	0.027[c]			0.024	0.027

* $p < .05$. [b] $p < .01$. [c] $p < .001$.

In Model 1, the amount of variance explained in moral reasoning at the end of the first year of college, differed a slight amount between the two phases. Background and precollege characteristics explained 25% of the variance in the criterion measure for students with a consolidation phase and 22% for those in transition. When we include the pretest measure of moral reasoning, the amount of variance explained in the posttest measure changed substantively between the two groups. Adding the pretest to the model increased the amount of variance explained in the posttest by nearly 23% for students with a consolidation phase for a total adjusted R^2 = .48. For students in a state of transition, however, including the pretest to the model increased the variance explained in the posttest by only 14% for a total adjusted R^2 = .36. This kind of differential pattern of explained variance in the criterion between students with consolidation versus transition phases continued to develop in Models 3 through 6.

We entered the course-taking pattern and integration of course material in other contexts variables to form Model 3. These additional variables did not explain a significant amount of variance in the posttest measure of moral reasoning for students with a consolidation phase but did for students in transition (adj. R^2 = .37). Within the transition subsample, taking at least one course related to diversity issues was associated with a .13 standard deviation increase in the criterion ($p < .05$). Similarly, for students with a transition phase, the extent to which students reported their coursework helped them understand the historical, political, and social connections of past events was related to a .06 standard deviation increase in moral reasoning at the end of the first year of college ($p < .05$).

We then sought to see if the influence of these course-taking patterns and integration of material across contexts would persist when we introduced measures of faculty members' curricular practices and facilitation of the academic experience. In Models 4 and 5 we included measures of students' exposure to good teaching and high-quality faculty interactions and academic challenge, respectively. Again, the addition of these factors did not significantly change the amount of variance explained in the criterion measure for students with a consolidation phase. Net of other factors, for students with a consolidation phase, the faculty-facilitated part of the college experience had no significant relationship with students' moral reasoning at the end of the first college year.

This is not, however, the case for students with a transition phase. For these students, the influence of taking at least one diversity-related course in the first year on students' moral reasoning persisted in models including measures of good teaching and interactions with faculty as well as academic challenge. Although the magnitude of this relationship decreased in Models 4 and 5, it remained statistically significant with taking at least one diversity-related course associated with an increase of a .126 standard deviation in the good teaching model (Model 4) and a .114 standard deviation in the academic challenge model (Model 5). The link between courses that help students see the connection between the historical, political, and social connections of past events and end of first year moral reasoning also persisted when we added a measure of good teaching and interactions with faculty to the model (β = .054; $p < .05$); however, this association was reduced to nonsignificance with the addition of academic challenge.

In terms of the influence of the cocurricular experience and end of first year moral reasoning, our results suggest these measures are not associated with moral reasoning. The inclusion of these cocurricular experiences (Model 6) did

not explain a significant additional amount of variance in posttest moral reasoning for either students with a consolidation (adj. R^2 = .48; adj. $R^2\Delta$ = –.0001) or transition phase (adj. R^2 = .365; adj. $R^2\Delta$ = –.007).

Because of the possibility of lower effects due to attenuated variance in the criterion measure, we tested to verify that the consolidation subsample's effects were not artificially lowered. Dividing the variance of the criterion measure for the transition subsample into that of the consolidation subsample yielded a nonsignificant F ratio, $F = 1.012$, $p > .05$, suggesting we do not have artificially lower effects in the consolidation subsample due to attenuated variance in the dependent measure.

DISCUSSION

Understanding students in their first year in college remains a priority for scholars and educators interested in providing support to meet the eclectic needs of incoming students while maintaining an ethos of challenge that spurs them toward learning and development. This study takes an important first step toward addressing this priority by accounting for students' moral phases and their potential impact on explaining the relationship between college-going and moral reasoning development. Indeed, the consistency with which students approached reasoning across moral dilemmas not only affected the net impact that college-going exerted on developmental gains, but also the magnitude of these gains, with transitional students reporting greater increases in moral reasoning at the end of the first-year of college than their consolidated counterparts.

This study was the first of its kind to investigate the predictive relationship between college-going and moral reasoning development and how this differed for students in consolidated versus transitional phases. Validating the study's first hypothesis, when compared to those in consolidation, students in transitional moral phases were more likely to report being influenced by particular aspects of the college environment, including enrolling in diversity-related courses as well as those that connected material to historical events. These findings corroborate the work of moral psychologists who suggest that students in transition phases may be more developmentally ready for or open to environmental challenges intended to spur moral reasoning development (see Derryberry & Thoma, 2005; Thoma & Rest, 1999; Walker & Taylor, 1991; Walker et al., 2001). Refining our understanding of this developmental readiness and what it implies for designing curricular and cocurricular experiences would be a fruitful venue for future research.

With increased consistency in processing information comes an increased resilience to environmental stimuli designed to help students move within and through developmental stages, a result that validates this study's second hypothesis. As expected, overall fit indices demonstrated that the amount of variance explained by the model iterations specifying college impact on moral reasoning development for students in consolidation were stronger (lowest adj. R^2 = .479) than those for students in transition (lowest adj. R^2 = .365). Moreover, while the block of variables comprising course-taking patterns and behaviors explained a significant portion of the variance in the criterion for students in transition, R^2 = .372, it did not for those in consolidation, R^2 = .480. In fact, neither the variable blocks nor their constituent items assessing college impact reached statistical significance for the model explaining consolidated students' moral reasoning development. Taken together, these results suggest that educators should not assume that

students come to college willing to reexamine (or even examine) the moral dimensions of their lives. Alternatively, first-year scholars and practitioners may want to assume very little of their incoming students, especially as it relates to their understandings of justice and fairness. Maintaining a challenging learning environment while adjusting expectations to align with what may be more developmentally appropriate for first-year students is theoretically consistent with effective practices that optimize students' potential for reasoning at stages more sophisticated than their own (Rest 1987, 1988; Rest & Deemer, 1986).

One of the study's most striking results involved the impact of taking a diversity course on spurring developmental gains reported by students in moral transition. Across all model iterations for transitional students, enrolling in a diversity course influenced moral reasoning development irrespective of race, gender, political orientation, aptitude, or cognitive ability. Although many scholars have found positive developmental gains reported by students enrolled in diversity courses (see Adams & Zhou-McGovern, 1994; Gurin, Dey, Hurtado, & Gurin, 2002; Hurtado et al., 2003; Nelson-Laird, Engberg, & Hurtado, 2005; Yeakley, 1998), this is one of the first to empirically address the psychological mechanisms (i.e., those associated with developmental readiness) potentially responsible for such a change, specifically as it relates to moral reasoning development.

Having made significant gains in moral reasoning, students in moral transition might be more developmentally ready for and receptive to negotiating the disequilibrium and discomfort that often arise when discussing contested diversity issues, such as the structural roots of oppression among various target groups. Achieving a healthy psychological resolution to the developmental crises spurred by disequilibrium is a catalyst for making gains in moral reasoning (Piaget, 1948; Kohlberg, 1976; Rest, 1986) and in spurring the processes and commitments necessary to make a pluralistic democracy succeed:

> In a homogeneous environment in which young people are not forced to confront the relativity or limitations of their point of view, they are likely to conform to a single perspective defined by an authority. In a hierarchical environment in which young people are not obliged to discuss and argue with others on an equal basis, they are not likely to do the cognitive and emotional work that is required to understand how other people think and feel. These cognitive and emotional processes promote the moral development needed to make a pluralistic democracy work. (Gurin et al., 2002, p. 340)

Although students in a consolidated phase in this sample had higher average scores on both the pretest and posttest measure of moral reasoning, it may be the case that students in these phases are more likely to adopt a single-minded perspective when faced with content relating to power, privilege, and issues of equity. This perspective may result in students either resisting the disequilibrium that comes with learning about or interacting with diverse others, or retreating to familiar patterns of thoughts and behaviors for negotiating internal conflict when faced with issues related to diversity. Embedded in this suggestion and of particular interest to teaching and learning scholars is the idea that some first-year students (those in moral consolidation) might be less equipped for facing, wrestling with, and resolving certain developmental crises, like the cognitive disequilibrium and perspective-taking characteristic of diversity courses and needed for moral growth.

In tandem with findings relating diversity course-taking to moral reasoning development,

another interesting result is the lack of significant effects of cocurricular diversity experiences on inducing moral growth, either for students in transition or in consolidation. Collectively, these results suggest that leaving diversity learning to chance may attenuate the many benefits espoused by diversity educators and policy makers. That educators must be intentional about creating learning environments that use diversity-related content to expand notions of fairness beyond what serves oneself is especially critical for first-year students, who, perhaps for the first time, are being asked to wrestle with sensitive race-related issues that are not easily resolved.

IMPLICATIONS

This study's findings have implications for the higher education community as well as for those who study moral psychology. Although we investigated how moral reasoning development and its relationship to college-going differed between students in moral consolidation with those in moral transition, it is impractical to suggest that educators would group students accordingly and design interventions based on these differences. Rather, we would hope that findings from this study would inspire educators to adopt more strategic approaches to providing opportunities that are developmentally appropriate to incoming first-year students. Structuring and sequencing developmentally challenging and appropriate learning opportunities for first-year students may help them achieve developmental gains in moral reasoning. Scholars and educators should not assume that transitioning to college implies that students are necessarily ready to "re-examine the moral dimension of their lives in preparation for their new life roles" (King & Mayhew, 2002, p. 248). While this may be the case for some, other first-year students may not be as ready to face and resolve such a developmentally challenging call. We suggest that educators approach moral education as a curricular (as opposed to only a course-based) objective, infusing messages about social justice throughout the curriculum at different points in students' academic journey. Such a strategy might extend the reach and impact of these messages, as students are likely to move between moral periods throughout their college years (see Thoma & Rest, 1999).

Another strategic initiative involves being intentional about assessing the efficacy of first-year experiences on helping students achieve developmental gains on outcomes like moral reasoning. We urge student affairs professionals and researchers to approach assessing these first-year initiatives with methodological rigor, beginning with articulating theoretically grounded research questions that subsequently guide decisions concerning research design, selection of measures, and approaches to analyses. Doing so may provide the empirically based supports necessary for meeting the distinctive developmental challenges of first-year students.

Scholars who study moral reasoning development will be interested to learn that the impact of college-going on moral reasoning development differs for first-year students based on their entering moral phase. Results from this study underscore the importance of understanding the cognitive mechanisms involved with moral reasoning and how the consistency with which individuals apply these processes affect students' abilities to take advantage of learning opportunities intended to spur moral growth. The challenge for these theorists is to further refine how understanding these phases and their resultant differences on moral reasoning development will help educators design the most effective interventions that promote moral development.

CONCLUSION

Understanding the transitional issues first-time college students face is critical for scholars and educators interested in learning and development. Despite its importance, few studies have empirically investigated how this transition plays a role in understanding college's impact on students. This study is one of the first of its kind to do so, having examined the effects of moral phases on the moral reasoning development of 1,469 students spanning 19 institutions across the United States. Results demonstrate that developmental gains in moral reasoning varied as a function of moral phase, suggesting that some students may be more developmentally ready to face and resolve the educational challenges that often characterize first-year programs and curricula, such as required diversity courses.

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