

“One way to understand more about students’ academic experiences, and better support their diverse learning styles, is to consider student cognitive-affective makeup, and if need be, adjust teaching methods accordingly.”

Teaching the Whole Student: Perceived Academic Control in College Art Instruction

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While college art instructors strive to respond to the current generation of students, educational psychologists stress the importance of teachers’ focusing on students’ cognitive-affective makeup in addition to conveying course content. Attribution theory—and more specifically, student perceptions of control over academic outcomes—can serve to enhance teaching effectiveness and raise instructor empathy for students’ diverse educational competencies. This study examines the impact of academic control-enhancing teaching methods on first-year college art student success and defines best-practice recommendations based on quantitative and qualitative findings. Results suggest that understanding perceived academic control and incorporating that insight into classroom instruction can help college art faculty to more effectively support first-year students’ adaptation to college, academic performance, mid-year retention, and matriculation to a second year.

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College art educators often express frustration about today's generation of incoming students, known as the **Millennials**. Members of this new cultural cohort often learn and interact differently from their older classmates and their mostly Baby-Boomer professors. In fact, generational researchers have found that Millennials are, among other things, more sheltered, protected, conventional, pressured, and confident than students of previous generations (Howe & Strauss, 2007; Oblinger, 2003; Raines, 2002). While helpful to consider, such comparisons only begin to explain the conundrums of college teaching today. For example, in a national survey of college professors, 44% of respondents reported that their students are ill-prepared for the demands of higher education (Sanoff, 2006). In addition, many students are either unable or unwilling to stay enrolled; ACT reported in 2004 that 45.4% actually completed their degrees, and in 2005, that only 68.3% of first-year students returned for their second year of college. College art instructors, like their colleagues in other disciplines, routinely cite phenomena such as student non-responsiveness to instruction, sinking motivation, and under-preparedness (i.e. insufficient academic or behavioral qualities commonly associated with college success). Despite these trends, most college teaching positions still require no specific teaching skills.

Instructors of college art may enjoy a small advantage over non-art faculty members, however, as studio art courses appear to foster certain

skills that could help students become engaged, and stay engaged. As Hetland, Winner, Veenema, & Sheridan (2007) explain, skills of reflective self-evaluation, willingness to experiment and learn from mistakes, task-persistence, observation, connecting schoolwork with the outside world, envisioning, and innovation are all uniquely afforded by the study of art/design. Yet even these skills may be counteracted by such factors as comparatively low scholastic aptitude requirements set for art school applicants or by some students' attraction to college art for its apparent emphasis on technical skills alongside academic ones. Thus college art faculty share the concerns of those in other fields about their students' persistent struggles to adapt to college life, maintain good grades, and stay in school. In fact, faculty frustration with students who appear poorly motivated, low in affect, or under-prepared for college work was evident at the Association of Independent Colleges of Art and Design's 2007 national symposium (serving faculty from 36 leading U.S. art schools) which featured four crowded presentations under the heading "Who Are Our Students?" What college art instructors across the nation perceive as rising student struggles may be particularly perplexing because these instructors remember when students seemed to be more independent, more responsive to instruction, and more apt to take responsibility for their own academic progress.

Such faculty impressions might be dismissed as simply a form of generational whining about "kids today," but they are based on observation, they arise from genuine concern, and they should not be ignored. After all, many entering college art students may truly be under-prepared—academically, developmentally, or emotionally—for some or all of the challenges that college life presents. For example, facing new academic standards might

stimulate some highly-motivated students to work harder, while others may feel overwhelmed. Similarly, the challenge of building new social networks might stop some introverted students in their tracks while more outgoing individuals may sail ahead without hesitation.

Some of the student struggles college art instructors cite may also result from severe cuts to primary and secondary schools' art programs, which have, ironically, prepared students for college over the last 20 years better than ever before. Still, faculty impressions of student deficiency—whether real or imagined—persist, and at times, become self-perpetuating obstacles to teaching excellence. For this reason, instructors need to find ways to balance their own views on students with a deeper understanding of what really makes students tick.

One way to understand more about students' academic experiences, and better support their diverse learning styles, is to consider student cognitive-affective makeup, and if need be, adjust teaching methods accordingly. For example, educational psychologists tell us that "the first year of college is a transitional period in students' lives in which psychological control is diminished or undermined due to the emphasis on success/failure, heightened academic competition, increased pressure to excel, frequent academic failures, unfamiliar academic tasks, new social networks, and critical career choices" (Perry, 2003, p. 316). Researchers have also suggested that college teaching should include a number of critical considerations in addition to course content. McGlynn (2005) urges college faculty to focus on students' psychosocial development and on the integration of cognitive theory into teaching practice. Grimes (1999) recommends that educators enhance their understanding of students, and their ability to design effective programs for them, by examining basic psychological theories, including motivation, self-efficacy, and attribution theory. Such recommendations make good sense because aspects of student cognitive makeup are closely tied to learning.

Theories of Learning

Motivation theory is critical in influencing learning behavior and is especially important in breaking a self-perpetuating cycle of low performance exhibited by many under-prepared students (Grimes, 1999). **Self-efficacy** refers to students' *beliefs* about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Bandura, 1994). **Attribution theory** focuses on the *reasons* students give for their successes and failures. In particular, students' perceptions of what causes academic success or failure are critical to their actual ability to succeed. Indeed, understanding young people's attributions may also unlock much of what concerns many college art instructors about new students.

Attribution theory emanates from the concept of locus of control (LC), defined by Rotter (1966), which categorizes a students' expectations about whether the results of actions have *internal* causes that are under their control or *external* ones that are beyond their control. Internally-oriented students might attribute their successes to things that *they do*, such as working hard, managing their time, or being persistent, while externally-oriented individuals might attribute achievements (or the lack of them) to forces *beyond* their control, such as luck, fate, or powerful others. Rotter also developed a measure for LC, and since that time, both the concept and measurement of control attribution have evolved through thousands of studies in psychology and education (Dollinger, 2000). One scholar (Perry, 2003) defined the concept of *perceived academic control* (PAC) which assesses students' beliefs in their capacity to influence academic outcomes in college courses (low or high). PAC research conducted in college classrooms has shown that students who indicate higher PAC (or who are more internal) actually do have more control over their academic performance and are more motivated to achieve than their counterparts who attribute lower PAC (or who are more external). The latter are also found to be

less motivated to succeed (Perry, Hladkyj, Pekrun, Clifton, & Chipperfield, 2005).

Aspects of all three psychological theories—motivation, self-efficacy, and attribution—can be seen to coalesce in the LC/PAC paradigm. In fact, numerous studies link students' internal/high control attributions to academic success, producing such findings as: the pattern of low motivation, negative affect, and poor academic performance commonly associated with failure-prone college students is consistently manifested by students who are low in transient (i.e. situational) academic control (Perry, 2003); perceived academic control consistently enhances academic performance early in students' first year of college (Ruthig, Perry, Hall, & Hladkyj, 2004); and locus of control is one of the most important factors influencing student engagement and college success (Nowicki, Duke, Sisney, Strickler, & Tyler, 2004). Perhaps most notable, for college art instructors, are positive correlations between internal attributions of academic control and another prized cognitive function—creativity. Defined by cognitive researchers as the process of generating ideas as original, useful products, creativity has been positively correlated to internal LC; internals tend to score higher on specific factors of creativity, and may be more likely to find happiness in the process of creative ideation (Pannells & Claxton, 2008, Chadha, 1989).

Consideration of the role of LC/PAC in student success raises key questions about what might influence one's attributions: which factors diminish a student's sense of academic control, and which ones enhance it, especially in the critical first year? Ironically, college experience itself does some of both. On one hand, a surprising number of students, whether [classified as] internal, external, or somewhere in-between, experience a precipitous loss of academic control during their first year of college, a loss identified as "a singularly important academic marker in achievement settings" (Perry, 2003, p. 315). On the other hand, according to the only nationally representative evidence published

since 1990 on the net effects of college on locus of control, students who completed two years of college were approximately 3% more internal than students with only a high school diploma (Pascarella & Terenzini, 2005, citing Knox, Lindsay, & Kolb, 1993). Such findings suggest that for students either to recover diminished baseline internality, or to become slightly more internal, they must overcome a predictable loss of personal control during their first year of college, and then complete a whole second year. Considering this, along with K-12 education's emphasis on high-stakes tests and memorization, it is perhaps not surprising that so many new college students choose not to continue.

Fortunately, there is much that college instructors can do to support students better. For example, Grimes, Millea, & Woodruff (2004) suggest that instructors can implement specific teaching strategies to assist students in assuming control over their own learning, classroom experiences, and measured outcomes. Such strategies can best be identified by recognizing a further aspect of LC/PAC: students' attributions include both trait- and state-like manifestations, the former being fixed in personality and the latter being transient and subject to change. A process called *attributional retraining* (AR) can affect how students explain their successes and failures, and can be accomplished in college classrooms. In fact, AR is actually most efficient in reducing transient externality when administered to a group or entire class (Perry, 2003).

It is important to note that neither the suggestion that AR be employed in college art classes, nor its actual implementation, constitute a critique of any art education method. Rather, AR is meant to supplement whatever pedagogical models we might prefer. In this way AR can serve to reduce the negative impact of students' externality or low academic control and to increase their motivation and task-persistence (Ruthig, Perry, Hall, & Hladkyj, 2004). Further, AR can help instructors target the concept of personal responsibility, which has been shown not only to enhance students' academic

performance but also college retention (Gifford, Briceño-Perrion, & Mianzo, 2006).

Cognitive theory is certainly not new to art education. Indeed, some familiar pedagogic models that have influenced college art curricula include psychologically-informed elements. For example, Freire's (1973) theory of *emancipatory education* engages students in identifying social and emotional themes that foster a high level of motivation to participate. Emancipatory education's emphasis on student motivation appears, at least in part, to satisfy educational psychologists' call for integrating cognitive theory into teaching practice. Similarly, hooks' (1994) introduction of a mutual process of learning/teaching, which she calls *engaged pedagogy*, asks teachers to offer their own narratives and interpretations, thus bonding students with their teachers and transforming teachers along with students. Such "transgressive teaching" could be viewed as foretelling the later suggestion of Howard (2006), that student perceptions of academic control can be altered by the identification of role models, adults who have qualities or skills that students admire. Finally, Chavez & Soep (2005) defined *pedagogy of collegiality*, a process of teaching that engages students in shared, collective work and responsibility, and that may also enhance students' sense of individual responsibility related to learning.

If existing educational models available to art educators already incorporate aspects of psychological theory, why should college art instructors embrace AR? Simply, because AR enhances existing pedagogy by focusing students' attention directly on their own thinking about what controls academic success and failure. For this very reason, it could be argued that college art education is particularly well-suited to using AR effectively. For thoughtfully integrated AR interventions can actually alter students' dysfunctional attributions, introduce new ones, and replace maladaptive beliefs with more functional ones to change subsequent behaviors (Perry, 2003).

Fortunately, identifying students with external/low LC/PAC, modeling internality for them, and lacing AR interventions into classroom routines are all challenges that college art instructors can accept, and meet. Could the LC/PAC concept and the control-enhancing potential of classroom AR help first-year college art students as they have served other student populations? Logic suggests that they can, and the possibility warrants close examination.

Basis for Study

The prospect of integrating LC/PAC and classroom AR within first-year college art/design curricula raises several key questions which prompt this study: (a) How prevalent are external/low control attributions in a representational sample of first-year college art students? (b) Does the proportion of students indicating external/low control attributions increase (as prior studies suggest) throughout the year? (c) Do classroom AR interventions mitigate, stabilize, or reverse any such changes, and do they enhance students' academic performance? (d) What can students and faculty members tell us about what most impacts students' sense of academic control, and how teaching might enhance it?

This study seeks to answer these questions by measuring all first-year students' LC/PAC at the start of academic year 2007-2008 at a leading, selective independent college of art and design; measuring changes in student LC/PAC during the course of that year while classroom AR interventions are being implemented; interviewing students and faculty to learn what, in their view, impacts students' academic success, and; employing qualitative and quantitative findings from student and faculty measures to define best-practices for college art instruction (see Appendix A).

Methods

Participants

Students. An ethnically diverse group of 244 (70.7% female, 29.3% male) students at Otis College of Art and Design responded to brief confidential paper-and-pencil surveys (participation at baseline

= 244; mid-year = 242 (69.4% female, 30.6% male); year-end = 234 (71.4% female, 28.6% male). Data for scale validation were collected in a minimally intrusive manner; a sub-sample of 67 randomly selected students (68.7% female, 31.3% male) completed a longer survey. To facilitate three structured focus groups of six students each, 18 students (72.2% female, 27.8% male) were invited and agreed to participate.

Faculty. Twenty-two Foundation instructors (55% female, 45% male) were invited to, and attended, the comprehensive faculty development seminar, which introduced the LC/PAC and AR concepts, the basis for study, and the intervention. Ten (45%) participants teach full-time, 12 (55%) part-time; all attended due to their shared interests in teaching and learning.

Procedures

- (1) **Pre-phase:** Students—Baseline and mid-year LC/PAC were measured via anonymous surveys; Faculty—Foundation instructors were informed about LC/PAC and AR in a one-day faculty development seminar; a year-long classroom AR intervention was implemented.
- (2) **Interim-phase:** Students—First-term academic performance data were collected from the Registrar; a longer (28-item) survey was conducted via sub-sample for scale validation; Faculty Input was gathered using a self-report questionnaire; support for the LC/PAC and AR concepts was measured via quantitative survey.
- (3) **Post-phase:** Students—Year-end LC/PAC was measured via confidential surveys; a student sub-sample ($n=18$) was invited, based on LC/PAC survey results (with an incentive of \$50 worth of art supplies), to participate in three structured focus groups: externals/low controls (E), internals/high controls (I), and *turnarounds* (T), or individuals whom faculty identified as having sharply improved over two terms. Five females and one male participated in group (E); four females and two males in each of groups (I) and (T). Second-term student academic performance data were also collected. Faculty—Three

“high-support” instructors (high-scoring on a faculty support questionnaire) were invited to participate in a faculty idea-building session to define best-practice recommendations based on qualitative and quantitative findings.

Student surveys were administered over three 5-day periods (weeks 1, 14, and 27) by non-teaching department administrative staff who invited students to participate during a shared design course. Baseline and mid-year survey data were gathered anonymously (without identifying information). At year-end, students were provided an informational letter and indicated verbal consent by participating in a confidential, identified (by college ID numbers only) survey. All activities were approved by the Institutional Review Board of the University of Southern California.

Intervention. Instructors were introduced to the LC/PAC and AR concepts, including four control-enhancing teaching methods selected for likely fit from attribution literature, and asked to implement them in their courses over two terms. The four methods were:

- (1) Openly discussing the LC/PAC concepts in classes.
- (2) Reinforcing student behaviors consistent with internal/high LC/PAC.
- (3) Assisting students who demonstrated behaviors consistent with externality.
- (4) Modeling for students how to “behave like internals” (Dollinger, 2000, p. 539).

Faculty were encouraged to use these methods whenever students were observed to deflect responsibility or to show low motivation, under-preparedness, or non-responsiveness to instruction and were reminded of them periodically via hardcopy memoranda authored by the primary investigator. In addition to the Foundation studio faculty, two instructors of a simultaneous First-Year Initiative program embedded in all Foundation English classes created an informative podcast about LC/PAC which was presented to all participants early in the pre-phase.

Instruments and Measures

Students. The LC/PAC survey, based closely on that created by Dollinger (2000), consists of six attitude statements patterned after several longer internal-external scales. Each statement expresses a commonly held opinion regarding the importance of self, powerful others, or chance in academic achievement (see Appendix B). Students indicate the extent to which they agree or disagree with each statement; there are no right or wrong answers. While the instrument's internal consistency reliability is modest ($\alpha = .60, .67$, and $.70$), it is well-suited for in-class use as an exploratory organizer of control attributions when responses fall within high-scoring (internal) and low- to mid-scoring (external) groups. Each participant's score on the Likert-type scale (1 = strongly agree; 5 = strongly disagree) was calculated as the sum of his/her ratings for all items, where high scores indicated internality/high-control. Cut points were created based on the response options; scores above 23 were viewed as indications of internal/high-control (H) because responses definitely were consistent with internality. Likewise, scores below 13 were identified as external/low controls (L). Those scoring between 13 and 23 were ascribed a value of undecided (U); these students were viewed as *non-internal* (having enhanced potential to behave like externals/low-controls) because they attributed academic control to forces other than their own behavior. Thus low- and mid-scoring students together constituted a group identified as (L+U).

The Academic Locus of Control Scale (Trice, 1985) was used to further assess scale validity for the 6-item survey. Also developed for college student populations, this comprehensive scale includes 28 items. Student levels of agreement with these statements reflect attitudes and beliefs about four factors of academic control: personal effort, random chance, individual ability, and influence by powerful others. For the current study, five items were slightly modified to apply more closely to art students. For example, the statement "Studying every day is important" became "Studying and/or working on projects every day is

important." The scale has shown favorable internal consistency and test-retest reliability ($\alpha = .74, r = .92$), as well as concurrent validity with general LC scales and indices of achievement motivation. In the current study, significant concurrent validity was also found between results from this scale and those from the brief in-class survey ($r = .466, p < .0001$).

Participants in structured focus groups responded to open-ended questions that were based on theory and applicable findings from the literature. Interviews aimed to identify students' perceptions of four aspects of academic control: (a) what influenced their ability to succeed; (b) whether teaching methodology was among those influences; (c) whether those influences were within their control; (d) whether LC/PAC affected their academic performance (see Appendix C). Further, a seven-item rank order of importance scale (1-5) asked focus group participants which factors (as identified by Perry, 2003) they believed most impacted their sense of control over their academic success (see Appendix D). Two factors were modified in consultation with six upper division students to best reflect aspects of art/design study: "increased pressure to excel" became "increased pressure to be creative" (i.e. to be original, inventive, novel in response to assigned visual problems), and "the emphasis on success/failure" became "the public nature of success/failure" (i.e. group critiques, or assessments of artwork). Structured focus group data helped faculty idea-builders define best practice recommendations.

Faculty. A five-item questionnaire elicited teacher suggestions and reflections on LC/PAC and AR; prompts such as "What benefit(s) does understanding the concept of locus of control bring to your work with our changing student population?" were included (see Appendix E). A quantitative faculty support survey, including questions such as "Locus of control is a useful concept for college art instructors," used a 1-5 Likert-type scale where high scores indicate strong support for the LC/PAC and AR concepts (see Appendix F). Internal consistency reliability for this scale is favorable ($\alpha = .86$).

Data Analysis

Students. Means and frequencies (percentages) were computed to provide descriptive statistics for the sample. Correlations between LC/PAC scores and academic performance were examined. T-tests, chi-square tests, and analyses of variance were employed to compare group differences by gender and ethnicity. Quantitative analyses were carried out using SPSS v.14.0. Qualitative content analyses of student interviews elicited themes of academic success and teaching linked to academic control, using NVivo v. 8 software. Cross-cutting themes, and themes unique to each group, were identified.

Faculty. Means and frequencies were computed to provide statistical description of faculty support. T-tests were employed to make gender comparisons among faculty members.

Results

The baseline student sample ($N = 244$) included 171 (70.7%) females, 71 (29.3%) males (two did not identify); 40.2% Asian/Pacific Islanders, 5.1% African Americans, 29.5% White/non-Latinos, 11.5% Latinos, 0.4% Native Americans, and 13.3% declining to state. Student focus group participants ($n = 18$) included 13 (72.2%) females, 5 (27.8%) males; 22.2% Asian/Pacific Islanders, 11.1% Latinos, and 66.7% White/non-Latinos.

Pre-phase

Students

Baseline LC/PAC. Survey data were gathered in the first week of the first term to establish a baseline for comparison with mid-year and year-end results. Baseline sums ($M = 23.94$; $SD = 3.39$) indicated that

38.9% responded in the low- to mid-scoring (L+U) category.

Mid-Year LC/PAC. The survey was repeated in the fourteenth week of the first term ($M = 23.36$; $SD = 4.07$). The sample revealed 42.6% (L+U), a rise of 3.7% in overall externality from baseline-to-mid measurements (Table 1). Independent samples t-tests indicated that this rise was not statistically significant ($p = .08$), suggesting that faculty mitigation efforts may have limited predictable shifts toward externality previously associated (in the literature) with students' critical first term.

Interim-phase

Students

First-Term Academic Performance. Two indicators of students' first-term academic performance were compared to baseline data (high school or transferring GPAs): (a) end of first term GPAs and (b) mid-year attrition. Findings suggest that classroom AR may not only support students' GPAs, but also their motivation and decisions to stay enrolled for a second term. For example, a drop was noted (-0.27) between the sample's baseline and first-term GPAs. During this period, the mean LC/PAC score also decreased (-0.58, albeit not a statistically significant drop; $p = .08$). Unfortunately, the relationship between these decreases could not be tested for statistical significance due to the anonymous data (Table 2). Further, GPAs of those students who did not continue were 34% lower than the mean GPA for the whole sample.

Finally, mid-year attrition fell to a record low (51.9% below its prior five-year trend) (Table 3).

Table 1. Participants in LC/PAC Score Categories by Test Phase

Category	Pre ($N = 244$)	Mid ($n = 242$)	Post ($n = 234$)
Internal/High (H) > 23	149 (61.1%)	139 (57.4%)	146 (62.4%)
Undecided (U) 13-23	92 (37.7%)	97 (40.1%)	84 (35.9%)
External/Low (L) < 13	3 (1.2%)	6 (2.5%)	4 (1.7%)
(L+U) ≤ 23	95 (38.9%)	103 (42.6%)	88 (37.6%)

Table 2. Student GPAs Compared to LC/PAC Scores

	Mean GPA	Change		Mean LC/PAC	Change
Baseline	3.10			23.94	
First Term	2.83	-.27		23.36	-.58
Second Term	2.92	+.09		23.92	+.56
Mid-Yr Attrition	1.85	.98 < 1st Term		n/a	n/a
Yr-End Attrition	2.40	.52 < 2nd Term		22.52	1.40 < 2nd Term

Note. Baseline Mean GPA is based on high school and/or college-transfer data.

Table 3. First-Year (Foundation) Student Attrition Over Time

Academic Year	Mid-Yr (1st Term)	Change		Yr-End (2nd Term)	Change
2002-2003	9.4%			23.3%	
2003-2004	10.6%	+ 12.8%		23.2%	- 0.4%
2004-2005	10.8%	+ 1.9%		23.2%	- 0.0%
2005-2006	12.4%	+ 14.8%		20.8%	- 10.3%
2006-2007	10.6%	- 14.5%		21.4%	+ 2.9%
5-Year Average (Trend)	10.8%			22.4%	
2007-2008 (Current Study)	5.2%	- 51.9%		16.1%	- 28.1%

Faculty

Input and Support. Faculty input revealed moderate-to-strong faculty buy-in for the LC/PAC and AR concepts. For example, 77% of instructors agreed or strongly agreed that understanding LC/PAC is useful to college art instructors, and 86% agreed or strongly agreed that the LC/PAC and AR concepts have a meaningful place in college art/design instruction. Faculty concerns and suggestions were later examined in the post-phase idea-building session. The quantitative survey indicated strong support, considering a mean of 24.04 ($SD = 4.42$) with possible scores ranging from 6 to 30. T-tests revealed no significant differences in faculty support by gender ($t = .935, p = .36; M_{male} = 22.88, M_{female} = 24.71$).

Post-Phase**Students**

Year-end LC/PAC. The in-class survey was repeated, with identifications, in the twelfth week of second term ($M = 23.93; SD = 3.87$). Results suggest that the impact of this study's classroom AR compares favorably to the shift toward internality previously associated with twice as much college experience (Knox, et al., 1993) (Figure 1).

The sample revealed 37.6% (L+U), compared to 42.6% at mid-year (Table 1). While an independent samples t-test of the mid-to-post measurements showed no significant change ($p = .12$), and chi-square results indicated no significant change in the proportions of LC/PAC categories at each measurement point ($\chi^2 (6) = 4.683, p = .585$), a

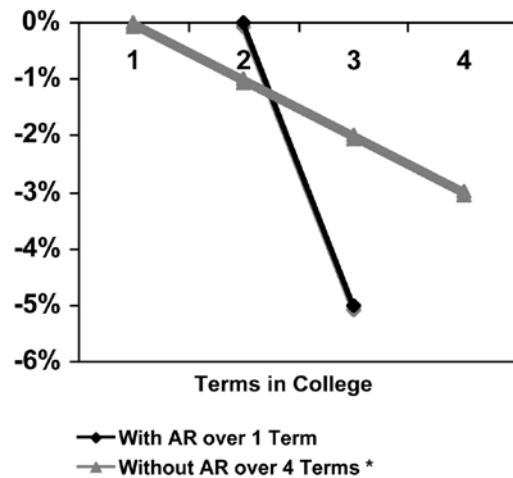
decline of 5% in overall externality is meaningful when considering that previous research revealed a decline of only 3% after students had completed two years of college (Figure 2).

Second-Term Academic Performance. Two indicators of academic performance were compared to baseline, first-term, and year-end LC/PAC data: (a) second-term GPAs and (b) year-end (second-term) attrition. Findings indicate that those categorized as internal/high (H) LC/PAC achieved higher grades than non-high (L+U) across the academic year (Table 2). For example, significant correlations were found between LC/PAC scores and baseline GPAs ($r = .174, p = .008$), second-term GPAs ($r = .227, p < .0001$), and cumulative GPAs ($r = .217, p = .001$). Thus, as LC/PAC scores increased, GPAs increased. A significant difference was also found between (H) and (L+U) LC/PAC scores in baseline GPA: ($M_H = 2.96, M_{L+U} = 2.76; t = -4.117, p < .0001$); and cumulative GPA ($M_H = 3.00, M_{L+U} = 2.77; t = -3.750, p < .0001$).

Further results suggest that classroom AR can enhance rates of matriculation to a second year. Analysis of year-end (second-term) attrition data, like that at mid-year, revealed a significant drop (28.1% below its prior five-year trend). The mean LC/PAC score of those students who did not continue was 5.9% below that of the whole sample (Table 3).

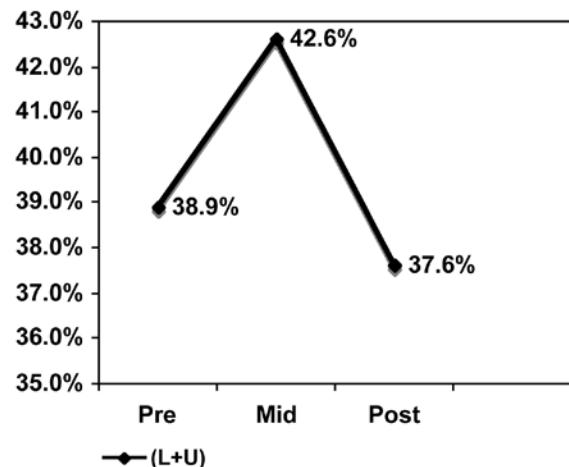
Gender and Ethnicity. Although some studies have suggested that males or whites indicate more internality than females or minorities (Gifford, et al., 2006; Pasarella, Edison, Hagedorn, Nora, & Terenzini, 1996), other research shows no such correlations (Schultz & Schultz, 2005; Knox, et al., 1993). Thus, it is not surprising that the current study found no significant gender differences in student LC/PAC sum scores, nor in the proportions of males vs. females in any LC/PAC category at any measurement point, based on independent samples t-tests and chi-square tests. Similarly, the sample indicated no significant differences in mean LC/PAC scores by ethnic group ($p = .965$) nor in any LC/PAC group by ethnicity ($p = .682$).

Figure 1. Change in Externality With and Without AR



* Note. Knox, Lindsay, & Kolb, 1993; changes per term are represented uniformly.

Figure 2. Change in (L+U) by Phase



Structured Focus Groups. Qualitative analyses revealed that students perceived positive impact on their success from learning time management skills, viewing positive examples, and attending workshops. Students in all groups also perceived impact on their success from teaching methodology. As one participant (E) explained, "They really push you. I mean ... if they critique you and ... it's really bad it actually means they know you can do better...." The pace of instruction and workload, by contrast, made students feel less able to succeed.

Of 21 cross-cutting themes linked to academic success, all were primarily influenced by either teaching, social, environmental, or personal factors; teaching and personal influences received 64% of all indications (Table 4). Many themes were indicated uniquely by one group, but not always as expected based on theoretical assumptions. That said, five themes were cited exclusively by group (E), with 57% of indications centering on **social** influences, such as competition: "You see people in your class and other classes and you kind of want to do as well or a little better." This is notable because social influences comprised only 19% of indications from (T), and 0% from (I). When asked what affected outcomes more—personal effort or conditions beyond students' control—the consensus was individual effort. "I don't think that luck or any outside [factor] affects how we perform. I think it's our own determination or will to work that determines what kind of work we produce," a student (I) stated. This is particularly intriguing because confusion about the role of effort in grading is known to arise within the program. As another participant (T) explained, some students "Put in less than half the time I put in and then get the same grade as me, so ... I don't really know how effort works." This issue was later examined in the idea-building session. The question of how LC/PAC might influence outcomes revealed the general belief that externality is deleterious, and internality is beneficial: "You just know that it's all on you."

Each group also numerically ranked the importance of factors that might *reduce* academic

control, and group rankings were analyzed for variance (Table 5). Participants in the external/low control group indicated a significant difference in the importance of "Pressure to be Creative" ($M = 3.83$) compared to those in the internal/high-control group ($M = 4.83$) participants ($p = .047$). The differences for "New Social Networks" approached significance between the external/low-controls ($M = 4.17$) and the turnarounds ($M = 2.67$) participants ($p = .054$).

Faculty

Idea-building. Several highly supportive instructors, identified via faculty support data, joined two investigators and the Foundation Department Chair to review focus group and other findings in order to define best-practice recommendations. In addition to the concepts cited in AR literature, four others emerged as important to enhancing academic control in studio art settings: student learning communities, the effort dilemma, pre-critique, and problem-finding.

Student learning communities, or shared courses, engender coherent learning and enhance task-persistence in situations presenting control-reducing challenges, such as group critiques (Tinto, Engstrom, Hallock, & Riemer, 2001). The effort dilemma results from mixed messages students might receive about the value of effort. On one hand, they are told that grading is based on quality of learning outcomes, not the efforts expended to produce them. On the other hand, this message can be confusing when LC/PAC is concerned, as it holds that success depends on what students do—their *efforts*—rather than on external, and therefore, uncontrollable forces. Pre-critique is a process of analysis that identifies aesthetic strengths and weaknesses in student artwork without the stress of assessment; the application of criteria becomes empowering through the absence of grading (Lavender, 2003). Finally, problem-finding enhances control by involving students in setting individual challenges, rather than uniformly solving teacher-defined problems.

Table 4. Cross-Cutting Themes by Influence and Student Focus Group Indications

Theme	Influence	Externals	Internals	Turnarounds
Inspired by others' work	Environment	1		
Timely and constructive feedback	Teaching	1		
Giving full effort	Personal	1		
Competition with fellow students	Social	1		
Fellow students' critiques	Social	3		
Teachers' brutal honesty	Teaching	1	1	
Prioritizing	Personal	2	2	
Motivation	Personal	1		2
Timely and constructive feedback	Teaching	2		2
Environment (housing, open classes)	Environment		1	2
Willingness to push yourself	Personal		1	
Ability to apply / transfer skills	Personal		1	
Campus availability (after hours)	Environment		3	
Problem solving	Personal			1
Social support – friends	Social			2
Adapting work to faculty	Personal			1
Shared / common goals	Social			1
Determination	Personal			1
Positive examples, workshops	Teaching	1	1	2
Teachers challenging, encouraging	Teaching	1	2	1
Learning time management	Personal	1	2	2

Consideration of these and related concerns led to seven key recommendations (detailed in Table 6): (a) openly discuss LC/PAC in classes; (b) role model internality for students; (c) reinforce responsibility-taking; (d) support student learning communities; (e) relieve the effort dilemma; (f) practice pre-critique; (g) foster students' problem-finding skills.

Discussion

A significant number of Foundation students revealed external/low control attributions at baseline, and the percentage of those indicating externality did rise by the end of the first term. Yet instructional intervention appears successfully to have stabilized this shift, and then reversed it, in

Table 5. Student Focus Group Rankings of Control-Reducing Influences

	External / Low	Internal / High	Turnarounds
Public nature of success/failures	4.20	4.00	3.50
Heightened academic competition	4.00	3.83	4.50
Pressure to be creative	4.17	3.83	4.83
Frequent academic failures	3.00	3.67	3.33
Unfamiliar academic tasks	3.83	4.17	4.17
New social networks	2.67	4.17	3.67
Critical career choices	4.00	4.50	4.67

Note. On the 1 – 5 rank order of importance scale, 1 = not important at all; 2 = somewhat unimportant; 3 = no opinion either way; 4 = somewhat important; 5 = extremely important.

Table 6. Recommendations from the Faculty Idea-Building Session

As Part of Course Content:	By means of:
Openly discuss LC/PAC in classes	- Including in course syllabi - Presenting topic early in term - Soliciting student input
Role-model internality for students	- Sharing professional experiences - Thorough in-class demonstrations - Disclosing problem-solving processes
Reinforce responsibility-taking	- Teaching responsibility-taking behaviors - Reviewing responsibility-taking frequently - Rewarding successes with grades or credit
Support student learning communities	- Structuring curriculum accordingly - Enrolling students in common courses - Collaborating with shared faculty
Relieve the effort dilemma	- Explaining the role of effort in success - Informing students of teacher's awareness - Crediting efforts that elevate outcomes
Practice pre-critique	- Encouraging strengths prior to grading - Identifying weaknesses prior to grading - Reviewing criteria prior to grading
Foster students' problem-finding skills	- Prompting for novel responses - Reinforcing students' individuality - Rewarding inventiveness/originality

the second term. Correspondingly, student academic performance improved, mid-year attrition fell to less than half its prior trending rate, and year-end attrition also dropped significantly.

These results are encouraging since failure-proneness is known to manifest itself early in students' first year of study. Although factors affecting student retention and graduation rates are complex due to the influence of finances, employment opportunities, and shifting career choices (Tinto, 1987), findings here suggest that LC/PAC might also serve art/design school admissions. Indeed, some colleges have already introduced LC measures into their applications as "new predictors" of students' college success (Gifford, et al., 2006, p. 18).

Statistically insignificant correlations between participants' LC/PAC, gender, and ethnicity are welcomed, and might be explained by other factors, such as the shared characteristic defined by Sternberg (2004) as *creative intelligence*, or the ability to generate novel ideas or new associations between existing ideas. This synthetic skill functions similarly across ethnic groups and could moderate influences of gender as well.

Variations in focus group results suggest that students' perceptions of academic control may vary in response to individual factors. For example, internal/high controls might view "Pressure to be Creative" as most important because they tend to feel more responsible for their academic progress, and as a result, are more motivated to meet project criteria, achieve high grades, or fulfill instructor expectations.

Limitations of the Study

Since LC/PAC scores could not be followed across measurement points, it was impossible to test for direct correlations between control attributions and academic performance throughout the year. Similarly, correlations could only be run with a cross-sectional sample, so the direction of relation between LC/PAC and GPA could not be verified. Thus, while results suggest that internal/high control enhances grades, it is also plausible that improved grades enhance perceived control. The

crucial factor of faculty buy-in was especially challenging: some instructors were ambivalent about the goal of helping at-risk students, confusing student weaknesses with a lack of talent or intelligence, and doubting what they saw as "coddling" students with diverse educational competencies. However, such sentiments are not in themselves indications of ineffective teaching. Rather, they are indications of a disconnect between teachers' and students' beliefs.

Conclusions and Implications

College students' sense of academic control is known to diminish significantly during their first year of study. Yet current findings suggest that college art instructors can successfully weave control-enhancing teaching methods into studio courses to influence students' control attributions toward internality, thus, better supporting student success as measured by grades and retention. Specifically, incorporating the concepts of LC/PAC and AR into college art instruction by means such as those tried and recommended here may enhance the academic performance of students who are capable, but who may be encumbered by external control attributions.

Findings also indicate that thoughtfully implemented classroom AR can enhance students' controllable attributions within a single college term to a greater extent than has previously been associated with four terms of college alone. In turn, as other studies have shown, enhancing attributions of academic control can support student success in more ways than those examined here, including dimensions such as task-persistence, affect, motivation, and creativity.

This research may serve art education by illuminating and helping to reduce student and teacher struggles that arise more from aspects of student cognition than from curricula, programming, or course content. For art education may be influenced by student psychology to a greater extent than we have known; extensive cognitive research has focused on general student populations rather than on art students. While certainly

unique in some respects, art education may share with general education the need to recognize LC/PAC as an important current underlying student learning and, by extension, AR as a compelling teaching tool. Accordingly, further investigation into how AR efforts can align more closely with visual arts settings might help to refine control-enhancing studio teaching methodology.

Understanding LC/PAC and incorporating classroom AR may also make teaching in the arts more gratifying, for relegating academically struggling students to a lower status (whether consciously or not) further disables those students, and in turn, exasperates teachers. This study challenged not only the attitudes and beliefs of many students but of some instructors as well. Even those who initially viewed the LC/PAC concepts and the prospect of classroom AR with reluctance or suspicion developed a new empathy for students; this alone, arguably, could enhance their ability to reach diverse learners and render studio teaching itself more rewarding.

Art instructor sentiments regarding student struggles invite further research. Learning more about how teachers' own attributions impact their students could enhance teachers' ability to support student learning. For example, instructors who themselves attribute control externally for teaching outcomes might be less willing or able to implement classroom AR. For this reason, developing a means to assess instructors' AR intervention efforts could further inform best-practices.

Finally, longitudinal analyses of young Americans' control attributions suggest that students may be becoming more external over time. One study reports that the average college student in 2002 had a more external locus of control than 80% of college students in the early 1960s (Twenge, Zhang, & Im, 2004). The implications of such a claim could be ominous for future college retention and graduation rates and suggest that the time is now for cognitive theory-based teaching in higher education. Follow-up research is currently underway at Otis College of Art and Design into possible trending of first-year art student LC/PAC.

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Appendix A

Outline of Study Questions, Phases, and Procedures

Pre-phase

How prevalent are external/low control attributions in a representational sample of first-year college art students?

1. Faculty Development Seminar (orientation and training)
2. Baseline student survey (measure LC/PAC during first week of first term)
3. Mid-year student survey (measure LC/PAC at end of first term)

Interim-phase

Does the proportion of students indicating external/low control attributions increase (as prior studies suggest) throughout the year?

4. Collect first term student grade point averages
5. Gather faculty input and measure support (qualitative and quantitative questionnaires)
6. Collect mid-year (first-to-second term) retention/attrition data

Post-phase

Do classroom AR interventions mitigate, stabilize, or reverse any such changes, and do they enhance students' academic performance? What can students and faculty members tell us about what most impacts students' academic control, and how teaching might enhance it?

7. Year-end student survey (measure LC/PAC at end of second term)
8. Conduct structured student focus group interviews
9. Collect second term student grade point averages
10. Collect year-end (first-to-second year) retention/attrition data
11. Conduct faculty idea-building session (review data, define most effective interventions)

Appendix B

LC/PAC Survey (based on Dollinger, 2000)

Name: _____ Section _____ Term: _____ Gender: M F

Please rate the following statements according to your level of agreement or disagreement:

1. To a great extent, the important things that happen in my life are due to accidents.

1	2	3	4	5
Strongly Agree				Strongly Disagree

2. My success so far in my life is due to my ability or hard work.

1	2	3	4	5
Strongly Agree				Strongly Disagree

3. Whether or not I complete my college career and earn my degree will depend on what I do.

1	2	3	4	5
Strongly Agree				Strongly Disagree

4. Whether I succeed or fail is often due to how lucky I am and how powerful other people are.

1	2	3	4	5
Strongly Agree				Strongly Disagree

5. If I meet my personal goals in life, it will really depend on how prepared I make myself.

1	2	3	4	5
Strongly Agree				Strongly Disagree

6. Most of my problems will go away if I just ignore them.

1	2	3	4	5
Strongly Agree				Strongly Disagree

Scoring: High scores indicate internality; reverse-score items 2, 3, 5.

Appendix C

Summary of Topics: Student Structured Focus Groups

- I. Establish rapport with group participants.
- II Explain concepts of locus of control and academic control; examine factors leading to externality, including students' own experiences of new forces that may impact their sense of what controls academic successes or failures.
- III. Examine importance of internal and external attributions:
 - What do students believe they can do (vs. what others can do) to affect their academic outcomes?
 - How important do students believe their efforts (such as following directions, re-working projects, or starting new assignments early) are in influencing their academic outcomes?
 - How important do students believe circumstances beyond their control (such as luck, fate, talent, or powerful teachers) are in influencing their academic outcomes?
- IV. Examine perceptions of causal influence on academic success:
 - What do students believe most influenced their ability to succeed during the year?
 - What is the most pronounced area of growth or change students identify?
 - What do students identify as having made them feel most unable to succeed?
- V. Examine potential AR strategies:
 - What do students believe teachers can do to support student academic success?
 - How do students think internal locus of control might affect a student's academic performance? External locus of control?
 - What are some things that students' teachers have done during the year that gave students a sense of personal control over their academic outcomes?
 - What are some things that students' teachers have done during the year that made students feel less control over their academic outcomes?

Appendix D

Structured Student Focus Group Rank of Importance Scale

Focus Group: _____

Gender: _____

For each question below, circle the number to the right that best fits your opinion on the importance of the issue. Use the scale above to match your opinion.

1	Not important at all
2	Somewhat unimportant
3	No opinion either way
4	Somewhat important
5	Extremely important

Question	Scale				
	1	2	3	4	5
1. Public nature of success/failure (critique)					
2. Heightened academic competition					
3. Pressure to be creative					
4. Frequent academic failures (new criteria)					
5. Unfamiliar academic tasks (need for sustained attention, studio skills, critical thinking)					
6. New social networks					
7. Critical career choices					

Appendix F

Faculty Input Questionnaire

1. Can you identify any practical ways that we might respond to students whom we believe show signs of external locus of control (i.e. deflecting responsibility, blaming, helplessness)?

2. How would you characterize the best-case “Turnaround” student that you have worked with this semester—what accounts for that student’s change?. If you don’t have a clear turnaround student, can you define how your students have changed to become more successful, generally?

3. What benefit(s) does understanding the concept of student locus of control bring to your work with our changing student population?

4. Perhaps we have always supported students with external locus of control, but haven’t called it by that name. If this is true, how have we mitigated it, or helped students overcome it?

5. If locus of control is both a trait and a state, how can we help students learn to “act like” internals, even if we can’t change their deeper cognitive makeup?