To Be or Not to Be (an Arts Major): Career Aspirations and Perceived Skills of Graduating Seniors Across Multiple Disciplines

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STRATEGIC NATIONAL ARTS ALUMNI PROJECT
Tracking the Lives and Careers of Arts Graduates

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I. Abstract

Previous research from the Strategic National Arts Alumni Project (SNAAP) suggests that while many arts alumni have entrepreneurial career paths, they may not be learning accompanying business and financial skills during their time at their institutions. As part of a grant from the National Endowment for the Arts, the researchers developed a set of items concerning career plans and confidence in skills to be appended to the 2015 National Survey of Student Engagement (NSSE), an annual survey of college students focused on academically purposeful activities shown to promote student success.

Findings from over 31,000 second-semester seniors of all majors at 127 institutions indicate that while arts majors may have some advantages in skill development, compared to students in other major fields, they may also be lacking in other skills needed for their future careers. Specially, arts majors had much more confidence in their creative skills, but not as much in their business and financial skills. Since the results also suggest that many arts majors plan to be self-employed or start their own business someday, this misalignment is cause for concern. Additionally, there were patterns found which suggest that a double major may have certain benefits. Educational institutions and policy makers can use this information to improve curriculum and support services for those pursuing a degree and a subsequent career in the arts.

II. Executive summary

The Strategic National Arts Alumni Project (SNAAP) collects and analyzes data on the educational experiences and career paths of arts alumni nationally. Founded in 2008, SNAAP is one of several large-scale annual survey projects in higher education at Indiana University School of Education's Center for Postsecondary Research. The center's largest project, the

National Survey of Student Engagement (NSSE), has surveyed millions of North American first-year students and graduating seniors since it was launched in 2000.

In 2014–15, SNAAP and NSSE combined forces, thanks to a research grant from the National Endowment for the Arts, to explore the perceived acquired skills and career plans of graduating seniors. Over 31,000 second-semester seniors from 127 institutions, ranging from small baccalaureate colleges to large research universities, responded in the spring of 2015 to a special set of survey items on skills and career transitions. Six percent of the total respondents were completing majors in the arts, which for this study include fine and applied arts, architecture, art history, music, theater or drama, music or art education, other fine and performing arts (such as dance), broadcast communications, and telecommunications (media arts).

Regarding career planning, arts majors were the most likely of all majors to have plans for self-employment someday (43% arts vs. 21% overall) and were second only to humanities majors to have "no plans" for immediately after graduation (4% arts, 5% humanities). Overall, 60% of all seniors expected to work full time immediately following graduation, with arts majors somewhat below that, at 55%. Arts (6%) and communications (8%) majors were most likely to report immediate plans for an internship (paid or unpaid). Many arts majors also planned to start their own business someday, suggesting plans for some relatively nontraditional career paths among those majoring in the arts.

Arts majors were more likely than all other majors to show perceived high levels of several creative skills learned in their degree programs. Specifically, arts majors were the most likely of all to report the highest confidence in their creative thinking and problem-solving skills (67%), followed by their counterparts in the humanities (66%) and communications (64%). Arts majors were also the most likely to indicate their coursework emphasized concepts and practices related to creativity such as generating new ideas or brainstorming, taking risks, evaluating multiple approaches to problems, and inventing new methods for solutions. Similar findings on skill development and future plans were seen in respondents with double majors—who, furthermore, were distinctly advantaged in terms of confidence in a variety of skills.

Arts majors, more than other majors, are planning for careers including entrepreneurship and self-employment—matching the realities of the creative workforce. Yet, while having confidence in the creative skills certainly needed for this type of work, arts majors are much less confident than other majors in their business and financial skills. This puts them at a disadvantage as they begin their careers and, according to previous SNAAP findings (Strategic National Arts Alumni Project, 2012), at risk later in life of experiencing a significant skills gap and an insufficient foundation in business and entrepreneurship.

These data yield important information about the value and impact of an intensive postsecondary arts education in comparison with other majors. At the same time, the findings illuminate some of the long-standing issues faced by new arts graduates, including lack of training in management and financial skills. Institutions and policy makers can use this information to improve curriculum and support services for those pursuing a degree and a subsequent career in the arts.

III. Introduction: Overview of previous literature and key research questions

"Creativity" and "innovation" are rightly considered high-impact words of the 21st century, as they reference essential capacities in an economy based increasingly on intellectual property, entrepreneurialism, and cross-disciplinary problem solving (Tepper & Kuh, 2011). Yet even with such firmly established worth, creativity remains an elusive concept for educators across all levels and most fields. Nonetheless, the American Association of Colleges and Universities (www.aacu.org) recently added "creative thinking" as an essential learning outcome for higher education, with the intent of encouraging progress in its development and definition. Advocates for arts education have long argued that high school graduates benefit from the creative thinking that takes place in arts courses (Sizer, 2004), but only recently has the concept of creative thinking as a skill to be fostered emerged as a critical new paradigm in education, rather than as a simple descriptive term associated with arts training. In response to the needs of employers and society and shifts in accreditation standards, even disciplines well outside the fine and performing arts, such as engineering (ABET, 1997), have included creative skill-building in the higher education curriculum. It is important to consider creativity across many different fields—and not to limit the construct to the arts—since many creativity researchers claim it is a generalized skill that can be observed across multiple areas, even within an individual (Plucker, 1998). Much research suggests creativity can be influenced by one's environment and experiences (Amabile, 1996), including curricular experiences in one's chosen major field (Miller & Dumford, 2015). Research also shows that training in creative thinking can be very successful and that certain pedagogical strategies can increase creativity (Scott, Leritz, & Mumford, 2004).

While many higher education institutions may appropriately question whether they are effectively teaching creativity skills, arts programs—where such skills are known to thrive—have particularly been under fire for not sufficiently preparing their students for the "real world" of work. Arts programs also face particular challenges in aligning their curriculum with accountability standards too rigid to take into account the unique skills and experiences of many arts students (Johnson, 2002). Research indicates arts students are especially adept at skills such as incorporating verbal studio feedback into revisions of their work (Edstrom, 2008) as well as critical thinking and interpersonal understanding (Badcock, Pattison, & Harris, 2010). Pitt and Tepper (2012) found that arts majors are much more likely than science and business majors to say their coursework encourages them to be creative, to take assignments in multiple directions, to make connections across classes and topics, and to further explore something about which they are curious.

Yet, despite having these advantages in skills, many arts majors are realistic about their post-graduation employment prospects and about the need to develop skills in a range of areas, including teaching and management, so as to increase their chances of employment (Luftig et al., 2003). Acquiring networking and administrative skills can expand the knowledge base of arts graduates beyond technique and theory (Creech et al., 2008). One European study found that practical skills in business and management, even though much needed by enterprising artists, were greatly underemphasized in arts curricula (Bauer, Viola, & Strauss, 2011). The Strategic National Arts Alumni Project (SNAAP) has documented similar results using American samples,

with arts alumni reporting that the business, financial, and entrepreneurial skills important for success in their work were not acquired sufficiently from their educational institutions (Strategic National Arts Alumni Project, 2011). Once students graduate and become working artists, they often recognize the need for "learning on the fly," the power of networking, and the value of having a career mindset (Smilde, 2008). Courses and programs that feature entrepreneurialism—blending career self-management and enterprise creation—are becoming progressively popular as one route to addressing this gap between artistic technique and practical career knowledge (Hong, Essig, & Bridgstock, 2012).

Concurrent with the greater emphasis on skill development in higher education, much has been made of recent reports, especially those from the Georgetown University Center on Education and the Economy, on the market value of an arts degree versus other types of degrees (Carnevale, Cheah, & Strohl, 2012). Data in those reports indicate some of the lowest income levels are among arts majors, especially recent college graduates (Carnevale et al., 2012). The popular press has been less circumspect, even calling arts majors "worthless" (Cantor, 2012).

While institutional administrators certainly want to see their graduates employed, to use income level as the be-all and end-all measure of career success does not capture a complete vision of successful outcomes. Other aspects of one's career can provide just as much if not more satisfaction than the traditional measures of income and prestige—especially in fields like the arts, which are not generally associated with large monetary incentives. Research suggests there are stronger predictors than income of intrinsic job satisfaction (e.g., having ample opportunities to be creative and to engage in work that reflects one's interests and values), such as working in a field related to one's training (Dumford & Miller, in press). Regarding the importance of earnings relative to other measures of success and satisfaction, SNAAP's Annual Report 2012 noted that "tangible economic benefits are unquestionably important, but calibrating the success of arts graduates only by how much they make does a disservice not only to those who practice their art and apparently derive great satisfaction from doing so, but also to the communities they enrich with artistic contributions" (Strategic National Arts Alumni Project, 2012).

Certainly, students' experiences at a higher education institution will differ greatly by discipline, even at the same college or university (Pascarella & Terenzini, 2005). For instance, a theater major will not have to meet the same curricular requirements nor will engage in the same activities as someone majoring in biology. One will have auditions and rehearsals while the other will have data collection and labs. Differences in student satisfaction between broad fields of study such as the humanities and the natural sciences are also suggested in previous research (Garcia-Aracil, 2009; Prosser, Ramsden, Triqwell, & Martin, 2003; Wiers-Jenssen, Stensaker, & Grogaard, 2002). Thus, to gain a more complete picture of a student's engagement and experiences, it is important to consider institutional experiences by discipline, as results may differ greatly depending on major (Williams & Van Dyke, 2008). The development of skills and career aspirations may also vary by major field, so it is necessary to collect information across multiple areas. Furthermore, students with more than one major may have distinct advantages—not only in terms of more interdisciplinary and integrative curricular experiences but also from a more utilitarian perspective, with wider career options (Pitt & Tepper, 2012). Therefore, it is important to examine double majors and their varied experiences in greater depth as well.

RESEARCH QUESTIONS

- Given the findings from previous research and the current economic concerns, this study focuses on how the skills and career aspirations of graduating college seniors who major in the arts compare with those of their peers in non-arts disciplines. Specifically, we explore the following questions in comparing these groups of graduating seniors:
    a. How entrepreneurial do they consider themselves to be? Do they intend to start their own businesses or to work as independent contractors?
    b. How well do they perceive their field of study has prepared them to think creatively and to use nonroutine problem-solving approaches? In what areas are they less confident about their skills?
    c. What are their immediate and long-term career plans? How prepared are they for careers in their chosen fields?
    d. What is the impact of a double major (arts and non-arts) on graduating seniors' perceptions of their skill sets, opportunities, and career aspirations?

IV. Methodology

The data from this study are from the 2015 administration of the National Survey of Student Engagement (NSSE). Housed at the Indiana University Center for Postsecondary Research, NSSE is an annual survey administered to first-year and senior students at four-year colleges and universities during the spring semester. NSSE documents the extent to which students engage in educationally purposeful activities that have been shown to support and promote student success (McCormick, Kinzie, & Gonyea, 2013). The main survey instrument focuses on areas such as higher-order learning, reflective and integrative learning, learning strategies, quantitative reasoning, collaborative learning, discussions with diverse others, student-faculty interaction, effective teaching practices, quality of interactions, supportive environment, and participation in high-impact practices.

In 2015, NSSE was administered to students at 585 four-year colleges and universities across the United States and Canada, with over 315,000 students responding at an average institutional response rate of 29% (National Survey of Student Engagement, 2015). Beginning in 2013, institutions participating in NSSE could select up to two Topical Modules to be appended to the core survey. The topics of these modules range from academic advising (selected most frequently) to civic engagement and learning with technology. For this study, we developed and utilized data from the Senior Transitions module, introduced in 2015, which looks at respondents' career plans and aspirations as well as their confidence in workplace skills.

ITEM DEVELOPMENT

A variety of processes were employed in the development of items for the Senior Transitions module. To develop the initial draft of module content, the research team consulted with various stakeholders including institutional researchers, other administrators, and the SNAAP National Advisory Board. Items focusing on skills and abilities were primarily derived from the Strategic

National Arts Alumni Project (SNAAP) survey. SNAAP, also housed at the Indiana University Center for Postsecondary Research, piloted its survey in 2008 and officially launched it in 2011. Focusing on both the educational experiences and career paths of arts alumni, the survey includes items that ask about skills within the context of how well they were acquired during one's education as well as how important they are in the workplace. The performance of these items has been consistently strong since SNAAP's launch, and participating institutions have used them in various ways. Additionally, as part of the 2012 NSSE administration, an experimental item set on these skills matching the questions on the SNAAP questionnaire was given to first-year and senior students at a selected subsample of 39 institutions. Results from that experimental item set suggest that while alumni and students may answer the items with somewhat differential patterns (Dumford & Miller, 2015), students are able to respond to such items adequately.

It was also determined that to serve as proxy for an "exit survey" (highly requested by NSSE institutional users in the past), some items should focus on immediate career plans and future career aspirations. For this purpose, a set of experimental items was developed by NSSE researchers and administered with NSSE 2014 to senior students at a selected subsample of 38 institutions. These items performed adequately, and some updates to response options were made based on an examination of write-in responses. These career plans items were then combined with the SNAAP skills items in a draft of the module to be offered with NSSE 2015. (Institutions sign up in the fall for participation in NSSE, which is administered the following spring.)

After this draft of the module was completed, in the summer of 2014 cognitive interviews were conducted with 20 students at two universities (a large state university and a smaller private university). The purpose of these interviews was to test the item set with actual students and to make any necessary edits prior to participating institutions' potential selection of Topical Module(s). All interview participants were seniors expecting to graduate in the coming year and represented a variety of majors. Interviewers utilized three different techniques: 1) concurrent verbal probing, 2) retrospective verbal probing, and 3) think-aloud techniques. With verbal probing (concurrent or retrospective), the interviewer begins by asking the interviewee a question (in this case, an item from the draft module). After the interviewee answers, the interviewer asks a follow-up question about specific other relevant information. The interviewer may also ask interviewees to expand on their interpretation of specific terms or their process in arriving at the answer. This questioning might probe the interviewees' current interpretations or situations (concurrent) or their recollection of information from the past (retrospective). In the think-aloud technique, the interviewer asks interviewees a question and tells them to verbalize their thoughts as they arrive at an answer, prompting only with "tell me what you're thinking about" if there is a pause. During these cognitive interviews, an interviewer and a note-taker were present, and the sessions were also recorded. An "analytic memo" based on these notes and digital recordings was created, noting patterns in responses.

In general, results from the cognitive interviews demonstrated that students interpreted and responded to many of the tested survey items as intended. Students were able to easily estimate their confidence in skills, as well as to provide answers concerning their immediate and longer-term future plans. However, this process also revealed areas for improvement of the items including 1) language problems: not knowing the meaning of words/phrases (e.g., inconsistent

interpretations of “entrepreneurial”); 2) temporal problems: involving the time period to which the question applies (e.g., differing time frames for the future in answering questions about career); and 3) logic problems: selecting a single “best” response option when many might apply (e.g., future plans might include both part-time employment and graduate school attendance) (Conrad & Blair, 1996; Willis, 2005). Based on the issues revealed, items were slightly altered accordingly, and the Senior Transitions module item set to be administered with NSSE 2015 was finalized (Appendix A).

SAMPLE DESCRIPTIVES

For the NSSE 2015 administration, 127 U.S. institutions elected to append the Senior Transitions module to their core questionnaire (a corresponding set of items for first-year student respondents was also developed through a separate internal process). Of the ten Topical Modules offered in 2015, the First-Year Experiences and Senior Transitions module was second most popular with NSSE schools.

Over 31,000 seniors responded to the module items. A variety of institution types and sizes were represented in the module sample (Appendix B). Many types of students were included in the sample as well. Approximately 63% of the seniors were female, 84% were enrolled full time, 68% were traditional age (i.e., less than 25 years old), and 44% were first-generation students (i.e., neither parent/guardian holding a bachelor’s degree). About 65% of the respondents were White; 8% Hispanic/Latino; 7% African-American/Black; 7% Asian/Pacific-Islander; 7% identified as more than one race/ethnic group; and 6% identified with another racial/ethnic group (e.g., Native American) or “prefer not to respond.” These characteristics are fairly consistent with the overall patterns for NSSE respondents (National Survey of Student Engagement, 2015).

A variety of major fields were represented among respondents as well including business (17%); health professions (17%); social sciences (13%); biological sciences, agriculture, and natural resources (10%); education (7%); engineering (7%); humanities (7%); arts (6%); social service professions (6%); physical sciences, mathematics, and computer science (5%); and communications, media, and public relations (4%). (For a list of how specific self-reported majors were collapsed into major fields, see Appendix C.) The majority of respondents (85%) reported having only one major. Among the sample’s 15% of students with more than one major, 8% of them had at least one of those majors in an arts field.

ANALYSIS

To look at differences across majors (among those reporting only one major), basic frequencies provided information for each subgroup by major field. Cross-tabulations with Chi-square analyses provided inferential statistical analyses for these comparisons. Similarly, when comparing single majors to double majors, as well as comparing double majors with at least one arts major to double majors with no arts major, basic frequencies and Chi-square analyses were used. (See Appendix D for all Chi-square, effect size, and p-values.)

V. Findings

CAREER PLANS BY MAJOR

When the data were explored for differences in career plans across major, several interesting patterns emerged for that majority of students completing only one major. First, arts majors were the most likely to report immediate plans for part-time employment (8.3% compared to 3.9% overall) and "other" plans (5.0% compared to 2.9% overall) (Table 1). Arts majors (3.7%), along with humanities majors (4.7%), were also more likely to report having "no plans at this time" (2.4% overall). Furthermore, arts majors (6.4%), along with communications majors (8.4%), were more likely to report immediate plans for an internship (3.5% overall). However, regarding the question whether certain majors had higher rates of completing an internship *during* their time at their institution, arts majors tended to be on par with others, with 50.7% of arts majors reporting having done an internship or field experience while a student (compared with 52.4% overall).

Table 1. Immediate Plans After Graduation by Major

	Full-time employment	Part-time employment	Graduate or professional school	Military service	Service or volunteer activity	Internship (paid or unpaid)	Travel or gap year	No plans at this time	Other
Arts (n = 1,529)	55.5%	8.3%	16.3%	0.3%	0.5%	6.4%	4.1%	3.7%	5.0%
Humanities (n = 1,490)	43.6%	6.3%	28.8%	1.0%	2.1%	4.5%	5.0%	4.7%	4.0%
Bio, Agric, & Nat Res (n = 2,452)	31.4%	3.7%	46.9%	0.5%	1.7%	4.7%	6.5%	2.2%	2.3%
Phys Sci, Math, CS (n = 1,286)	58.2%	2.6%	27.1%	0.9%	0.5%	3.5%	2.3%	3.0%	1.9%
Social Sciences (n = 3,163)	44.9%	4.6%	32.1%	1.1%	2.3%	3.9%	4.4%	3.0%	3.7%
Business (n = 4,118)	77.0%	2.3%	10.4%	0.8%	0.3%	3.1%	1.3%	2.1%	2.8%
Comm, Media, PR (n = 961)	65.0%	4.3%	10.1%	0.5%	1.8%	8.4%	3.9%	3.0%	3.0%
Education (n = 1,740)	81.6%	3.5%	8.0%	0.1%	0.9%	0.6%	0.9%	1.6%	2.8%
Engineering (n = 1,980)	76.5%	1.2%	14.4%	1.9%	0.3%	1.5%	1.1%	1.8%	1.4%
Health Professions (n = 4,479)	63.5%	4.5%	22.3%	0.8%	0.3%	3.1%	1.4%	1.7%	2.5%
Social Svc Prof (n = 1,546)	57.4%	3.9%	26.2%	2.0%	1.0%	2.5%	1.5%	2.3%	3.3%
Overall (n = 24,744)	60.2%	3.9%	22.4%	0.9%	1.0%	3.5%	2.7%	2.4%	2.9%

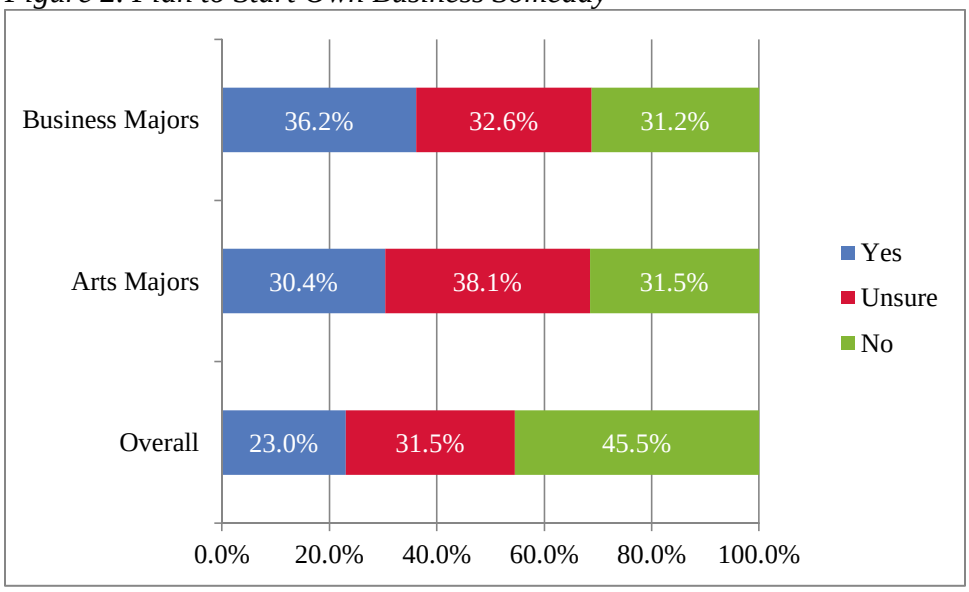
For those students who reported immediate plans for part-time or full-time employment, a follow-up question asked whether or not they already had a job secured for after graduation. Overall, 59.1% responded “No”; 26.1% responded “Yes, I will continue in my current job”; and 14.8% responded “Yes, I will start a new job.” However, looking at these responses by major field, arts majors (69.5%) and education majors (79.1%) were the most likely *not* to already have jobs secured. For the education majors, this may be an artifact of the academic calendar (most complete the survey in early spring, but K–12 schools do not hire new teachers until later in the

semester). The arts majors, though, appear to face the most uncertainty in terms of immediate plans after graduation.

Students majoring in the arts also showed an awareness that their career paths may be nontraditional. They were by far the most likely to plan on being self-employed at some point in the future (43.7% compared to 21.3% overall), with business majors the next most likely to report plans for self-employment, at 29.8% (Figure 1). Arts majors were second only to business majors in their plans to eventually start their own business, with 30.4% of arts majors and 36.2% of business majors reporting a plan to do this at some point (compared to 23.0% overall). When combining this with the "unsure" category, arts and business majors were equally likely to think they might start a business someday (Figure 2). These patterns indicate arts majors recognize they are entering a world of freelance and entrepreneurship, and they desire career advising to help them think about preparing for a portfolio career. As one student reported in an open-ended response: "Since my major is in a creative field, it would be beneficial to have more career advising sessions specifically focused on acquiring a career in a creative setting [and] advice for branding oneself and creating a successful portfolio."

Figure 1. Plan to be Self-Employed, Independent Contractor, or Freelance Worker Someday

Figure 2. Plan to Start Own Business Someday

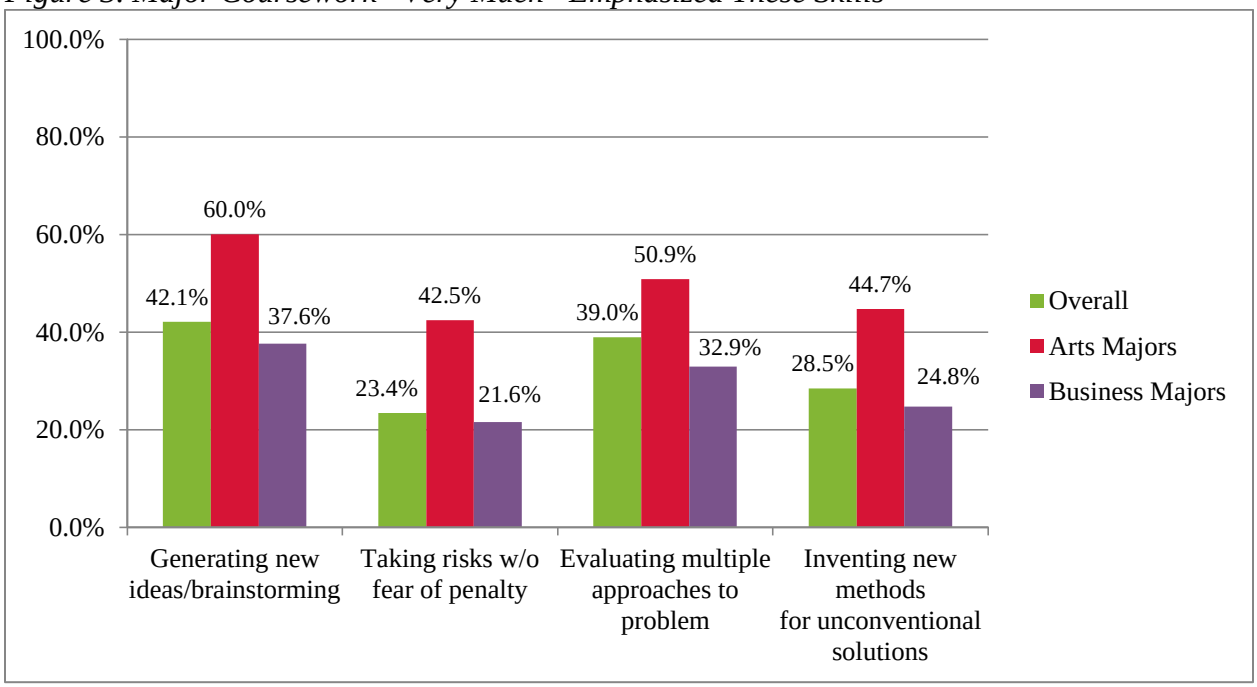


SKILLS BY MAJOR

Several noteworthy patterns also emerged when the responses from different major fields were compared for the items that focused on confidence in skills and abilities. Arts majors (67.1%) and humanities majors (66.4%), followed closely by communications majors (64.2%), had the highest percentages of students reporting "very much" confidence in their creative thinking and problem-solving skills. Engineering majors (59.7%) were very close to the overall percentage (59.1%) for "very much" confidence in their creativity skills. Seniors in the biological sciences were least confident in their creative thinking and problem-solving, with 52.4% reporting very much confidence in these skills.

Similar results were apparent in the items focusing on other aspects of creativity emphasized in coursework. Arts majors were the most likely to indicate their major coursework "very much" emphasized generating new ideas or brainstorming (60.0% compared to 42.1% overall), taking risks without fear of penalty (42.5% compared to 23.4% overall), evaluating multiple approaches to a problem (50.9% compared to 39.0% overall), and inventing new methods to arrive at unconventional solutions (44.7% compared to 28.5% overall). While both business and arts majors were more likely than most to plan to start their own businesses and to be self-employed (see above)—pathways that require many of these creative skills—notably, arts majors reported their classes better prepared them for such pathways, compared to their peers in business (Figure 3).

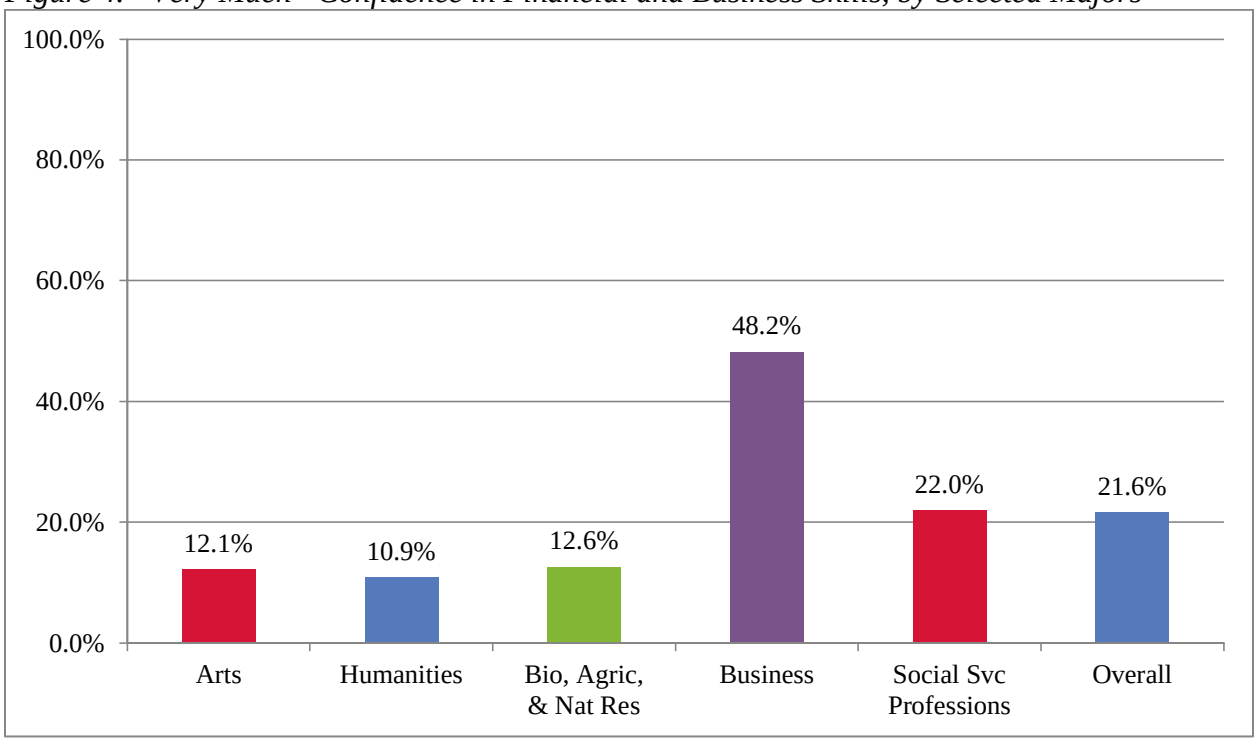
Figure 3. Major Coursework "Very Much" Emphasized These Skills



While arts majors seemed to excel in creative skills and experiences, the findings suggest deficits in other areas. Arts majors were the least likely to report "very much" confidence in their research skills (37.2% compared to 44.2% overall). Along with humanities (10.9%) and biological science majors (12.6%), arts majors (12.1%) reported low levels of confidence in their financial and business management skills (21.6% overall) (Figure 4). Additionally, while arts majors were only slightly below the overall percentage for "very much" confidence in entrepreneurial skills (15.3% compared to 17.5% overall), this seems low given the aforementioned plans by arts majors for self-employment and starting their own business. This result indicates a possible mismatch in the curriculum and that arts majors are not receiving enough relevant instruction in business and entrepreneurial skills, which may have a negative impact on their ability to fulfill their career aspirations.

Approaching graduation, the students seemed to be aware of this gap in skills. As one student pointed out in an open-ended response, "Art majors desperately need more business-related courses, as our field typically ends up self-employed. I don't know anything about business or filing taxes as a self-employed person, but I might own a studio one day, and I am completely unprepared for that." Another student acknowledged both the strengths and weaknesses of his academic experience, noting, "In my major (architecture), our curriculum stresses critical thinking and creative development, but it's isolated from the pragmatic and financial realities of the profession." This finding corroborates previous research, with both quantitative and qualitative evidence of misalignment between acquired skills and career ambitions for arts majors.

Figure 4. "Very Much" Confidence in Financial and Business Skills, by Selected Majors



DOUBLE MAJOR ADVANTAGES: OVERALL

In addition to the differences between majors noted above, we also explored whether there were significant differences between single and double majors. NSSE's core survey specifically asks students whether they plan to complete one major or more than one major, and students then self-report the major(s). As indicated earlier, 15% of the respondents reported more than one major, and among students with a double major, 8% of them had at least one of those majors in an arts field.

In general, double majors (regardless of field) seemed to carry some advantages, especially concerning student confidence in several skills. In addition to being more likely to plan on attending graduate school (27.6% of double majors compared to 21.8% of single majors), students with more than one major were also more likely to have high confidence in their critical thinking, creative thinking, persuasive speaking, clear writing, research, leadership, and networking skills (Table 2). Double majors were also slightly more likely to report their major coursework "very much" emphasized generating new ideas or brainstorming (46.8% of double majors vs. 41.8% of single majors), taking risks without fear of penalty (25.7% vs. 23.3%), evaluating multiple approaches to a problem (42.8% vs. 38.8%), and inventing new methods to arrive at unconventional solutions (31.6% vs. 28.4%). Furthermore, these patterns were true for both double majors within a major field (such as psychology and sociology within the broad field of social sciences) as well as double majors from two entirely different fields (such as chemistry and journalism). Even though causality cannot be confirmed in this study, previous research (Pitt & Tepper, 2012) reveals that double major students link these creativity gains explicitly with the experience and learning that occurs when studying two different domains of knowledge.

However, these gains may run counter to some of the obstacles students may face when they attempt to complete more than one major, as cited in one open-ended response: "I was never told about double majoring or minoring, I found out through other students in different majors. Advisors never had the answer to my questions about double majoring, they always made me run around to different [places] asking about other opportunities." Institutions may need to better address the realities of this situation to improve the experiences of their students.

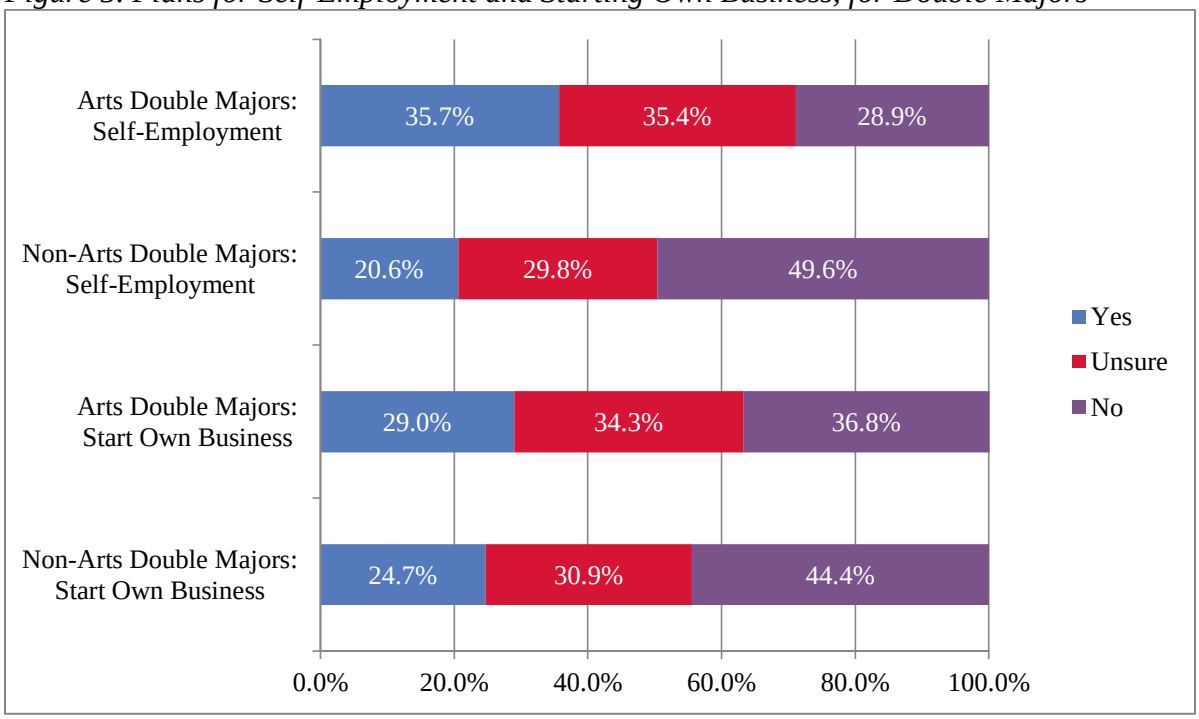
Table 2. "Very Much" Confidence in Skills, by Number of Majors

	Single Major	More than one major
Critical thinking /analysis	57.7%	65.3%
Creative thinking/problem solving	58.9%	64.6%
Research skills	44.0%	51.2%
Clear writing	47.8%	53.4%
Persuasive speaking	36.4%	41.5%
Leadership skills	46.7%	52.7%
Networking/relationship building	36.4%	40.1%

ARTS DOUBLE MAJORS VS. NON-ARTS DOUBLE MAJORS

We also explored whether arts double majors (with at least one of the student's two majors in the arts) had any advantages over non-arts double majors (with neither of the student's two majors in the arts). As among their single-major counterparts, the immediate and long-term career plans for these students differed somewhat. Those with at least one major in the arts, compared to non-arts double majors, were more likely to plan on part-time employment immediately after graduation (6.8% of arts double-majors vs. 2.6% of non-arts double majors). They were also slightly more likely to plan on doing an internship (5.8% arts vs. 3.1% non-arts) or to report having "no plans" currently (4.3% arts vs. 2.8% non-arts). Additionally, they were more likely to plan on being self-employed or starting their own business someday (Figure 5).

Figure 5. Plans for Self-Employment and Starting Own Business, for Double Majors[a]



[a] "Arts Double Majors" are students with more than one major, with one or both of these reported majors in the arts

When confidence in skills for arts and non-arts double majors was evaluated, students with at least one major in the arts seemed to be somewhat lacking, compared to double majors without either major in an arts field. Arts double majors were somewhat less likely than their non-arts double major peers to report "very much" confidence in their research (42.9% vs. 51.9%), writing (46.8% vs. 54.0%), and leadership skills (48.7% vs. 53.1%). Of most concern, given their nontraditional career plans for self-employment and starting a business, arts double majors were less likely to report "very much" confidence in their financial and business skills or their entrepreneurial skills (Table 3). However, in a pattern similar to that of students with single majors, arts double majors did seem to have an advantage over non-arts double majors in terms of coursework emphasizing taking risks without fear of penalty (33.1% of arts double majors reported "very much" compared to 25.0% of non-arts double majors), which is important in the development of their creative abilities.

Table 3. "Very Much" Confidence in Skills, for Double Majors

	Non-Arts Double Majors	Arts Double Majors
Research skills	51.9%	42.9%
Clear writing	54.0%	46.8%
Leadership skills	53.1%	48.7%
Financial and business skills	25.7%	13.1%
Entrepreneurial skills	20.9%	15.6%

VI. Conclusion: Policy recommendations and implications for future research

The results from this study suggest that arts majors face more uncertainty than their peers in other majors in their immediate plans after graduation and that their anticipated career paths are more likely to fall into nontraditional categories. Arts majors do not necessarily expect to work in a "9-to-5" office job. They know their chosen field, unlike some others (education, nursing, pre-med, etc.), has a much less prescribed connection to positions in the workforce. Graduating students in the arts are generally aware of this aspect of working in a creative field.

To ameliorate this uncertainty, there are some actionable steps that educational institutions and arts communities can take to positively impact the career outcomes of students graduating with a major in an arts field. One point of interest is our finding that arts majors are somewhat more likely to plan on an internship immediately after graduation, but they seem to be on par with other majors in having already completed one while enrolled at their institutions. This suggests that arts fields may be more dependent on internships than other fields—both as an economic reality and as a requirement for entering the workforce. Recent SNAAP findings indicate that internships, especially unpaid ones, are on the rise for undergraduate arts alumni (Frenette, Dumford, Miller, & Tepper, 2015). This SNAAP research also reveals discrepancies between types of internships, with already economically disadvantaged women and minorities of color being more likely to have unpaid (rather than paid) internships. Given the importance of internships, arts departments and career development centers may need to increase their availability in local community settings for arts majors, potentially restructuring some of the curricular requirements to allow for increased exposure to internships (paid ones, if possible). This opinion was reflected as well in open-ended responses from the study, as one job-seeking student noted, "I'm finding that most employers require some type of internship or work experience and I think that [my university] could have done more to prepare me for this reality."

Another actionable step that institutions should consider taking, in light of several findings from this study, is an expansion of the curriculum to include a greater focus on business and entrepreneurial skills for arts majors. SNAAP findings have been particularly clear in pointing out the gap between the need expressed by arts alumni for business training in their current work and the lack of such training in school (Lena et al., 2014; Strategic National Arts Alumni Project, 2011). Changes could better align the curriculum with their eventual career plans. Arts majors, along with business majors, were generally much more likely to have eventual career plans that involved self-employment and starting a business. Many arts majors appear to have entrepreneurial plans, indicating their awareness of the realities of the arts workforce they will face. While they are well prepared for the creative aspects of this type of work, arts majors are much less confident in their business and financial skills. This puts them at a disadvantage, and they may be less likely to succeed in their eventual career goals without a solid foundation in business and entrepreneurial knowledge. While many institutions have taken steps in the last decade to introduce new programs or curricula to provide their arts students with some training in financial skills, business skills, and entrepreneurship (Hong et al., 2012), these institutions remain in the minority in postsecondary arts education. Continuation of this trend across a greater number of institutions would serve students well as they transition into nontraditional roles in the workforce.

The results of this study point to several important advantages that come from majoring in the arts, and institutions would be wise to promote these strengths. In addition to learning the artistic technique specific to their individual disciplines, arts majors also have greater exposure to several aspects of creative thinking and problem solving in their major coursework—and these skills are transferable to a variety of situations. The gains from intensive study in the arts could be highlighted in recruitment and promotional materials for prospective students and parents. Evidence of these benefits could serve academic departments in their processes of assessment and accreditation and could also support resource allocation as *all* disciplines in higher education struggle for funding. Moreover, the arts pedagogy can play a more central role in supporting other disciplines across campus as they seek to integrate creativity and problem solving into the curriculum.

The benefits of a double major should be touted as well. The findings from this study align with those from other research examining the impact of two majors and exposure to diverse fields (Pitt & Tepper, 2012). Many students may be overwhelmed at the prospect of completing more than one major, but given the potential educational gains, institutions should consider providing additional support for this option. Allowing more flexibility in course scheduling, timing of required courses, and dual-component course options could ease some of the logistical issues that prevent students from pursuing a double major. Some institutions provide a "fifth-year option" for undergraduates who wish to go beyond their specific undergraduate major and to focus on a different but perhaps related topic. Higher education research should continue to explore the effectiveness of these types of programs.

The findings from this study represent only the beginning of several explorations that may be possible with this and other data. The Senior Transitions Topical Module was offered for a second year in NSSE 2016, and 143 U.S. institutions selected it. Over time, year-to-year trends and changes in responses may be observed. Expanding the database by combining 2015 and 2016 responses would increase the sample size, making it possible to more closely examine certain subgroups (e.g., first-generation theater majors at four-year private institutions).

Another area for further exploration involves the pairing of NSSE responses from graduating seniors with SNAAP responses from arts alumni. Since the list of skills in the NSSE module was originally adapted from existing items on SNAAP, looking for patterns across results from both instruments may yield additional insights. For instance, comparing the perceived development of skills prior to graduation with that of alumni several years after entering the workforce might show the effect of work experience on self-assessment of skills, or it might reveal differences between those whose career trajectories matched their plans and those whose careers took an unexpected direction. To shed more light on these various pathways, SNAAP developed a Career Skills and Entrepreneurship module for its 2015 administration; many of the module's items are also relevant in addressing the curricular needs of arts alumni and connecting them to their career plans.

Finally, having collected data from graduating seniors will ultimately allow NSSE and SNAAP to generate longitudinal findings about Americans with arts degrees. The ability to track arts majors beginning with the second semester of their senior year in college not only produces actionable data for institutions but will also greatly enhance our ongoing analyses of older arts

alumni. Developing and administering this NSSE module has created a framework for further data collection for a multitude of related research questions in the future.

It should be noted that some limitations to this study should be considered when interpreting the results and generalizing the findings. First, although the sample comprises a wide range of students attending multiple institutions, it does not represent all students at four-year colleges and universities in the United States. While all seniors at participating institutions were invited to participate, students self-selected to respond to the survey. Individual colleges and universities also elected to participate in NSSE for a variety of reasons, mainly for institutional improvement, which may impact the context of the student experience. In addition, this study relied on students to self-report their career plans and acquired skills, which may be subjective. However, most studies looking at student self-reports in higher education suggest that self-reports and actual abilities are positively related (Anaya, 1999; Hayek, Carini, O'Day, & Kuh, 2002; Laing, Swayer, & Noble, 1989; Pace, 1985; Pike, 1995). Furthermore, previous research suggests that social desirability bias does not play a major role in the responses of students in self-report surveys of basic academic behaviors (Miller, 2012). While this study's results should be interpreted as exploratory rather than definitive, they still provide insight into differences by major as well as the impact of having a double major on seniors' post-graduation plans and confidence in a variety of skills.

Overall, these data yield important information about the value and impact of intensive arts training. Graduating seniors can provide constructive information concerning skills acquired over the course of their studies —particularly creative thinking—that will enhance their career performance. These students are also in the unique position to provide information concerning not only their future career plans but also their expectations and priorities. Previous research suggests it is beneficial to consider the perspectives of both students and alumni when assessing curricular and programming experiences (Dumford & Miller, 2015). When graduating seniors are preparing to transition into the workplace is the ideal time for questioning them and gathering essential data. Looking at this information across both arts and non-arts majors expands our understanding of the strengths and weaknesses of various disciplines and has the potential to change how we value different major fields across the academic spectrum. Majoring in the arts can be a powerful educational experience. Skills nurtured and celebrated in the arts can empower teaching, learning, and careers in all disciplines. This study points toward actions institutions can take to strengthen their curriculum to enable even greater positive outcomes for their arts and non-arts graduates.

VII. References

ABET. (1997). *Engineering criteria 2000.* Baltimore, MD: Author.

Amabile, T. M. (1996). *Creativity in context*. Boulder, CO: Westview Press.

Anaya, G. (1999). College impact on student learning: Comparing the use of self-reported gains, standardized test scores, and college grades. *Research in Higher Education, 40,* 499–526.

Badcock, P. B. T., Pattison, P. E., & Harris, K. L. (2010). Developing generic skills through university study: A study of arts, science, and engineering in Australia. *Higher Education, 60,* 441–458. doi: 10.1007/s10734-010-9308-8

Bauer, C., Viola, K., & Strauss, C. (2011). Management skills for artists: 'Learning by doing'? *International Journal of Cultural Policy, 17*(5), 626–644.

Cantor, M. (2012, April 23). The 13 most worthless majors. *Newser.* Retrieved from www.newser.com/story/144600/the-13-most-worthless-majors.html

Carnevale, A. P., Cheah, B., & Strohl, J. (2012). *Hard times: College majors, unemployment, and earnings—Not all college degrees are created equal.* Washington, DC: Center on Education and the Workforce, Georgetown University.

Conrad, F., & Blair, J. (1996). From impressions to data: Increasing the objectivity of cognitive interviews. In *JSM Proceedings,* Survey Research Methods Section (pp. 1–9). Alexandria, VA: American Statistical Association. Retrieved from http://www.amstat.org/sections/srms/Proceedings/

Creech, A., Papageorgi, I., Duffy, C., Morton, F., Haddon, E., Potter, J., de Bezenac, C., Whyton, T., Himonides, E., & Welch, G. (2008). From music student to professional: The process of transition. *British Journal of Music Education, 25*(3), 315–331.

Dumford, A. D., & Miller, A. L. (in press). Assessing alumni success: Income is NOT the only outcome! *Assessment and Evaluation in Higher Education*. doi: 10.1080/02602938.2015.1098587. Online availability.

Dumford, A. D., & Miller, A. L. (2015). Are those rose-colored glasses you are wearing? Student and alumni survey responses. *Research and Practice in Assessment, 10,* 5–14.

Edstrom, A. M. (2008). Art students making use of studio conversations. *Art, Design, & Communication in Higher Education, 7(1),* 31–44. doi: 10.1386/adche.7.1.31/1

Frenette, A., Dumford, A. D., Miller, A. L., & Tepper, S. J. (2015). *The internship divide: The promise and challenges of internships in the arts* (SNAAP Special Report). Bloomington, IN: Center for Postsecondary Research, Indiana University School of Education.

Garcia-Aracil, A. (2009). European graduates' level of satisfaction with higher education. *Higher Education, 57,* 1–21. doi: 10.1007/s10734-008-9121-9

Hayek, J. C., Carini, R. M., O'Day, P. T., & Kuh, G. D. (2002). Triumph or tragedy: Comparing student engagement levels of members of Greek-letter organizations and other students. *Journal of College Student Development, 43*(5), 643–663.

Hong, C., Essig, L., & Bridgstock, R.S. (2012). The enterprising artist and the arts entrepreneur: Emergent pedagogies for new disciplinary habits of mind. In N. Chick, A. Haynie, & R. A. R. Gurung (Eds.), *Exploring more signature pedagogies: Approaches to teaching disciplinary habits of mind* (pp. 68–81). Sterling, VA: Stylus.

Johnson, C. (2002). The position of the fine art student in the context of public accountability of higher education, with specific reference to the Quality Assurance Agency experience. *Teaching in Higher Education, 7*(2), 215–224. doi: 10.1080/13562510220124277

Laing, J., Swayer, R., & Noble, J. (1989). Accuracy of self-reported activities and accomplishments of college-bound seniors. *Journal of College Student Development, 29*(4), 362–368.

Lena, J. C., Gaskill, S., Houghton, R. F., Lambert, A. D., Miller, A. L., & Tepper, S. J. (2014). *Making it work: The education and employment of recent arts graduates* (SNAAP Annual Report 2014). Bloomington, IN: Center for Postsecondary Research, Indiana University, School of Education.

Luftig, R. L., Donovan, M. J., Farnbaugh, C. L., Kennedy, E. E., Filicko, T., & Wyszomirski, M. J. (2003). So what are you doing after college? An investigation of individuals studying the arts at the postsecondary level, their job aspirations and levels of realism. *Studies in Art Education, 45*(1), 5–19.

McCormick, A. C., Kinzie, J., & Gonyea, R. M. (2013). Student engagement: Bridging research and practice to improve the quality of undergraduate education. In M. B. Paulsen (Ed.), *Higher education: Handbook of theory and research* (Vol. 28, pp. 47–92). Dordrecht, The Netherlands: Springer.

Miller, A. L. (2012). Investigating social desirability bias in student self-report surveys. *Educational Research Quarterly, 36*(1), 30–47.

Miller, A. L., & Dumford, A. D. (2015). The influence of institutional experiences on the development of creative thinking in arts alumni. *Studies in Art Education, 56*(2), 168–182.

National Survey of Student Engagement. (2015). *NSSE 2015 overview*. Bloomington, IN: Center for Postsecondary Research, Indiana University School of Education. Retrieved from http://nsse.indiana.edu/2015_institutional_report/pdf/NSSE%202015%20Overview.pdf

Pace, C. R. (1985). *The credibility of student self-reports*. Los Angeles, CA: Center for the Study of Evaluation; Graduate School of Education; University of California, Los Angeles.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (2nd ed.). San Francisco, CA: Jossey-Bass.

Pike, G. R. (1995). The relationship between self-reports of college experiences and achievement test scores. *Research in Higher Education, 36*(1), 1–22.

Pitt, R. N., & Tepper, S. J. (2012). *Double majors: Influences, identities, and impacts* (Prepared for The Teagle Foundation). Nashville, TN: The Curb Center, Vanderbilt University. Retrieved from http://www.vanderbilt.edu/curbcenter/cms-wp/wp-content/uploads/Teagle_Report_Final_3-11-13.pdf

Plucker, J. A. (1998). Beware of simple conclusions: The case for content generality of creativity. *Creativity Research Journal, 11*, 179–182.

Prosser, M., Ramsden, P., Triqwell, K., & Martin, E. (2003). Dissonance in experience of teaching and its relation to the quality of student learning. *Studies in Higher Education, 28*(1), 37–48.

Scott, G., Leritz, L. E., & Mumford, M. D. (2004). The effectiveness of creativity training: A quantitative review. *Creativity Research Journal, 16*(4), 361–388.

Sizer, T. R. (2004). *Horace's compromise: The dilemma of the American high school.* New York, NY: Mariner Books.

Smilde, R. (2008). Lifelong learners in music; research into musicians' biographical learning. *International Journal of Community Music, 1*(2), 243–252.

Strategic National Arts Alumni Project. (2011). *Forks in the road: The many paths of arts alumni—Strategic National Arts Alumni Project 2010 findings*. Bloomington, IN: Indiana University Center for Postsecondary Research.

Strategic National Arts Alumni Project. (2012). *A diverse palette: What arts graduates say about their education and careers—Annual report 2012.* Bloomington, IN: Indiana University Center for Postsecondary Research.

Tepper, S. J., & Kuh, G. D. (2011, September 4). Let's get serious about cultivating creativity. *The Chronicle of Higher Education.* Retrieved from http://chronicle.com/article/Lets-Get-Serious-About/128843/

Wiers-Jenssen, J., Stensaker, B., & Grogaard, J. B. (2002). Student satisfaction: Towards an empirical deconstruction of the concept. *Quality in Higher Education, 8*(2), 183–195. doi: 10.1080/1353832022000004377.

Williams, R., & Van Dyke, N. (2008). Reputation and reality: Ranking major disciplines in Australian universities. *Higher Education, 56,* 1–28. doi: 10.1007/s10734-007-9086-0.

Willis, G. B. (2005). *Cognitive interviewing: A tool for improving questionnaire design.* Thousand Oaks, CA: Sage.

VIII. Appendices

- A: Senior Transitions Module Codebook
- B: U.S. 2015 Module Summary Tables
- C: List of NSSE Major Fields Categorizations
- D: Inferential Test Statistics Tables

NSSE
national survey of
student engagement

NSSE 2015 Topical Module Codebook

Senior Transitions

Senior Transitions

NSSE 2015

Item #	*Variable*	*Variable Label*	*Values and labels*
[Note: item set was given to seniors as identified by institutional-reported class (IRclass=4)]			
Question 1.			
1a.	FYSsr01a	After graduation, what best describes your immediate plans?	1 = Full-time employment 2 = Part-time employment 3 = Graduate or professional school 4 = Military service 5 = Service or volunteer activity (e.g., AmeriCorps, Peace Corps, Teach for America) 6 = Internship (paid or unpaid) 7 = Travel or gap year 8 = No plans at this time 9 = Other, please specify:
--	FYSsr01a_txt	Other, please specify:	Write-in response
1b.	FYSsr01b	Do you already have a job for after graduation? *[Note: item was only given if respondent selected "Full-time employment" or "Part-time employment" on item 1a.]*	1 = No 2 = Yes, I will start a new job 3 = Yes, I will continue in my current job -9 = Student did not receive this question (coded as missing)
2.	FYSsr02	To what extent have courses in your major(s) prepared you for your post-graduation plans?	1 = Very little 2 = Some 3 = Quite a bit 4 = Very much
3.	FYSsr03	Do you intend to work eventually in a field related to your major(s)?	1 = Yes 2 = No 3 = Unsure
4.	FYSsr04	Do you plan to be self-employed, an independent contractor, or a freelance worker someday?	1 = Yes 2 = No 3 = Unsure
5.	FYSsr05	Do you plan to start your own business (nonprofit or for-profit) someday?	1 = Yes 2 = No 3 = Unsure

Item #	*Variable*	*Variable Label*	*Values and labels*
Question 6. How much confidence do you have in your ability to complete tasks requiring the following skills and abilities?			
6a.	FYSsr06a	Critical thinking and analysis of arguments and information	1 = Very little 2 = Some 3 = Quite a bit 4 = Very much
6b.	FYSsr06b	Creative thinking and problem solving	
6c.	FYSsr06c	Research skills	
6d.	FYSsr06d	Clear writing	
6e.	FYSsr06e	Persuasive speaking	
6f.	FYSsr06f	Technological skills	
6g.	FYSsr06g	Financial and business management skills	
6h.	FYSsr06h	Entrepreneurial skills	
6i.	FYSsr06i	Leadership skills	
6j.	FYSsr06j	Networking and relationship building	
Question 7. To what extent has your coursework in your major(s) emphasized the following?			
7a.	FYSsr07a	Generating new ideas or brainstorming	1 = Very little 2 = Some 3 = Quite a bit 4 = Very much
7b.	FYSsr07b	Taking risks in your coursework without fear of penalty	
7c.	FYSsr07c	Evaluating multiple approaches to a problem	
7d.	FYSsr07d	Inventing new methods to arrive at unconventional solutions	
8.	FYSsr08_txt	Is there anything your institution could have done better to prepare you for your career or further education? Please describe.	Write-in response

NSSE national survey of student engagement

2015 Topical Module: First-Year Experiences & Senior Transitions
Profile of Participating Institutions and Respondents and All Bachelor's-Granting U.S. Institutions and Students

Topical modules are short sets of questions on a topic related to current issues in higher education and student engagement that may be appended to the core survey. The **First-Year Experiences and Senior Transitions** module examines class-specific issues. The first-year items focus on academic perseverance, help-seeking behaviors, and institutional commitment, while the senior items explore post-graduation plans, links between the academic major and future plans, and confidence in skill development. In 2015, 127 U.S. institutions elected to append these items to the core survey. Of these, 120 belonged to one of the eight Carnegie classifications shown in the table below.[a]

The institutions and respondents participating in a given module are only a subset of all NSSE participating institutions and respondents. The table below displays the characteristics for module participants alongside NSSE 2015 participants as well as all bachelor's-granting U.S. institutions and students (all limited to the eight indicated Carnegie Classification categories).

	Institutions			Students		
	FY/SR Module (%)	NSSE 2015 (%)	U.S.[b] (%)	FY/SR Module (%)	NSSE 2015 (%)	U.S.[b] (%)
Carnegie Basic Classification[c]						
Research Universities (very high research activity)	3	4	7	14	14	23
Research Universities (high research activity)	10	9	6	24	19	15
Doctoral/Research Universities	4	6	5	5	7	8
Master's Colleges and Universities (larger programs)	30	32	25	31	36	31
Master's Colleges and Universities (medium programs)	12	11	11	10	7	7
Master's Colleges and Universities (smaller programs)	3	5	7	2	3	4
Baccalaureate Colleges–Arts & Sciences	17	15	16	8	7	5
Baccalaureate Colleges–Diverse Fields	21	18	23	7	8	7
Control						
Public	33	38	34	53	61	66
Private	68	62	66	47	39	34
Undergraduate enrollment						
Fewer than 1,000	17	13	20	4	3	2
1,000 – 2,499	33	31	33	14	14	10
2,500 – 4,999	20	21	17	16	15	12
5,000 – 9,999	14	18	14	17	21	19
10,000 – 19,999	11	11	9	25	22	24
20,000 or more	5	6	6	24	25	33

a. All numbers are unweighted and based on U.S. postsecondary institutions that award bachelor's degrees and belong to one of the eight Carnegie Classification categories in the table. Totals may not sum to 100% due to rounding.

b. U.S. percentages are based on the 2013 IPEDS Institutional Characteristics file.

c. For information on the Carnegie Foundation's Basic Classification, see **carnegieclassifications.iu.edu**

NSSE 2015 Topical Modules

U.S. Summary Frequencies by Class and Sex

Senior Transitions

Seniors

Item wording or description	*Variable name*	*Response options*	Female *Count*	Female *%*	Male *Count*	Male *%*	Total *Count*	Total *%*
1a. After graduation, what best describes your immediate plans?								
	FYSsr01a	Full-time employment	11,717	59	7,166	62	18,883	60
		Part-time employment	886	5	321	3	1,207	4
		Graduate or professional school	4,378	23	2,781	23	7,159	23
		Military service	98	1	183	2	281	1
		Service or volunteer activity (e.g., AmeriCorps, Peace Corps, Teach for America)	253	1	80	1	333	1
		Internship (paid or unpaid)	788	4	327	3	1,115	3
		Travel or gap year	595	3	251	2	846	3
		No plans at this time	525	3	285	3	810	3
		Other, please specify:	678	3	300	3	978	3
		Total	19,918	100	11,694	100	31,612	100
1b. [If answered "Full-time employment" or "Part-time employment"] Do you already have a job for after graduation?								
	FYSsr01b	No	7,505	56	4,306	57	11,811	57
		Yes, I will start a new job	1,616	12	1,488	19	3,104	15
		Yes, I will continue in my current job	3,462	31	1,677	24	5,139	28
		Total	12,583	100	7,471	100	20,054	100
2. To what extent have courses in your major(s) prepared you for your post-graduation plans?								
	FYSsr02	Very little	1,072	6	718	6	1,790	6
		Some	4,147	21	2,584	23	6,731	22
		Quite a bit	7,288	36	4,384	38	11,672	37
		Very much	7,370	37	3,984	33	11,354	35
		Total	19,877	100	11,670	100	31,547	100
3. Do you intend to work eventually in a field related to your major(s)?								
	FYSsr03	Yes	17,124	86	9,688	83	26,812	85
		No	727	4	670	5	1,397	4
		Unsure	1,992	10	1,317	12	3,309	11
		Total	19,843	100	11,675	100	31,518	100
4. Do you plan to be self-employed, an independent contractor, or a freelance worker someday?								
	FYSsr04	Yes	3,560	19	3,190	28	6,750	23
		No	10,736	53	4,622	39	15,358	47
		Unsure	5,534	28	3,838	33	9,372	30
		Total	19,830	100	11,650	100	31,480	100
5. Do you plan to start your own business (nonprofit or for-profit) someday?								
	FYSsr05	Yes	3,850	21	3,524	31	7,374	25
		No	10,087	49	4,064	34	14,151	43
		Unsure	5,901	30	4,059	35	9,960	32
		Total	19,838	100	11,647	100	31,485	100

Note: Results weighted by institution-reported sex, enrollment status, and institution size. Counts are not weighted.

Seniors

Item wording or description	Variable name	Response options	Female Count	Female %	Male Count	Male %	Total Count	Total %
6. How much confidence do you have in your ability to complete tasks requiring the following skills and abilities?								
a. Critical thinking and analysis of arguments and information	FYSsr06a	Very little	118	1	72	1	190	1
		Some	1,602	8	549	5	2,151	7
		Quite a bit	7,009	35	3,610	31	10,619	33
		Very much	11,107	56	7,424	63	18,531	59
		Total	19,836	100	11,655	100	31,491	100
b. Creative thinking and problem solving	FYSsr06b	Very little	108	1	76	1	184	1
		Some	1,388	7	631	6	2,019	6
		Quite a bit	6,788	34	3,668	32	10,456	33
		Very much	11,534	58	7,256	62	18,790	60
		Total	19,818	100	11,631	100	31,449	100
c. Research skills	FYSsr06c	Very little	354	2	216	2	570	2
		Some	2,904	15	1,652	14	4,556	14
		Quite a bit	7,631	38	4,506	39	12,137	38
		Very much	8,919	45	5,268	46	14,187	45
		Total	19,808	100	11,642	100	31,450	100
d. Clear writing	FYSsr06d	Very little	248	1	206	2	454	1
		Some	2,196	11	1,627	14	3,823	12
		Quite a bit	7,291	37	4,578	39	11,869	38
		Very much	10,058	51	5,206	45	15,264	49
		Total	19,793	100	11,617	100	31,410	100
e. Persuasive speaking	FYSsr06e	Very little	822	4	405	3	1,227	4
		Some	4,599	23	2,352	20	6,951	22
		Quite a bit	7,342	37	4,230	36	11,572	36
		Very much	7,034	36	4,647	40	11,681	38
		Total	19,797	100	11,634	100	31,431	100
f. Technological skills	FYSsr06f	Very little	802	4	319	3	1,121	3
		Some	4,873	24	1,963	17	6,836	21
		Quite a bit	7,901	40	4,215	36	12,116	38
		Very much	6,205	32	5,118	45	11,323	38
		Total	19,781	100	11,615	100	31,396	100
g. Financial and business management skills	FYSsr06g	Very little	3,470	17	1,194	11	4,664	14
		Some	6,772	33	3,654	31	10,426	32
		Quite a bit	5,597	29	3,803	32	9,400	30
		Very much	3,960	21	2,987	26	6,947	23
		Total	19,799	100	11,638	100	31,437	100
h. Entrepreneurial skills	FYSsr06h	Very little	4,784	24	1,900	16	6,684	20
		Some	6,980	35	3,892	34	10,872	34
		Quite a bit	4,741	24	3,342	28	8,083	26
		Very much	3,196	17	2,472	22	5,668	19
		Total	19,701	100	11,606	100	31,307	100
i. Leadership skills	FYSsr06i	Very little	546	3	301	3	847	3
		Some	3,003	16	1,691	15	4,694	15
		Quite a bit	6,810	34	4,097	35	10,907	35
		Very much	9,433	47	5,535	47	14,968	47
		Total	19,792	100	11,624	100	31,416	100
j. Networking and relationship building	FYSsr06j	Very little	945	5	606	6	1,551	5
		Some	4,283	22	2,581	22	6,864	22
		Quite a bit	7,143	36	4,176	35	11,319	35
		Very much	7,349	38	4,228	37	11,577	37
		Total	19,720	100	11,591	100	31,311	100

Note: Results weighted by institution-reported sex, enrollment status, and institution size. Counts are not weighted.

Seniors

Item wording or description	Variable name	Response options	Female Count	Female %	Male Count	Male %	Total Count	Total %
7. To what extent has your coursework in your major(s) emphasized the following?								
a. Generating new ideas or brainstorming	FYSsr07a	Very little	693	4	574	5	1,267	4
		Some	3,367	17	2,312	20	5,679	19
		Quite a bit	6,881	35	4,222	36	11,103	35
		Very much	8,872	44	4,511	38	13,383	42
		Total	19,813	100	11,619	100	31,432	100
b. Taking risks in your coursework without fear of penalty	FYSsr07b	Very little	4,158	22	2,866	25	7,024	23
		Some	5,457	27	3,293	28	8,750	27
		Quite a bit	5,184	26	2,938	25	8,122	26
		Very much	4,939	25	2,494	22	7,433	24
		Total	19,738	100	11,591	100	31,329	100
c. Evaluating multiple approaches to a problem	FYSsr07c	Very little	876	5	655	6	1,531	5
		Some	3,710	19	2,397	21	6,107	20
		Quite a bit	7,099	36	4,206	36	11,305	36
		Very much	8,005	40	4,315	38	12,320	39
		Total	19,690	100	11,573	100	31,263	100
d. Inventing new methods to arrive at unconventional solutions	FYSsr07d	Very little	2,460	13	1,671	15	4,131	14
		Some	5,312	27	3,293	28	8,605	27
		Quite a bit	5,895	30	3,412	30	9,307	30
		Very much	5,867	30	3,112	27	8,979	29
		Total	19,534	100	11,488	100	31,022	100

Note: Results weighted by institution-reported sex, enrollment status, and institution size. Counts are not weighted.

NSSE 2015 Topical Modules

U.S. Summary Means and Standard Deviations by Class and Sex

Senior Transitions

Seniors

Item wording or description	Variable name	Female		Male		Total	
		Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*
2. To what extent have courses in your major(s) prepared you for your post-graduation plans?							
	FYSsr02	3.04	.90	2.96	.90	3.01	.90
6. How much confidence do you have in your ability to complete tasks requiring the following skills and abilities?							
a. Critical thinking and analysis of arguments and information	FYSsr06a	3.47	.67	3.57	.62	3.51	.65
b. Creative thinking and problem solving	FYSsr06b	3.50	.66	3.55	.63	3.52	.65
c. Research skills	FYSsr06c	3.27	.78	3.28	.77	3.27	.77
d. Clear writing	FYSsr06d	3.38	.73	3.28	.76	3.34	.74
e. Persuasive speaking	FYSsr06e	3.05	.87	3.13	.85	3.08	.86
f. Technological skills	FYSsr06f	3.01	.85	3.23	.82	3.10	.84
g. Financial and business management skills	FYSsr06g	2.54	1.00	2.73	.97	2.62	.99
h. Entrepreneurial skills	FYSsr06h	2.35	1.02	2.55	1.00	2.44	1.02
i. Leadership skills	FYSsr06i	3.26	.83	3.26	.82	3.26	.82
j. Networking and relationship building	FYSsr06j	3.06	.89	3.04	.90	3.05	.89
7. To what extent has your coursework in your major(s) emphasized the following?							
a. Generating new ideas or brainstorming	FYSsr07a	3.20	.85	3.08	.89	3.14	.87
b. Taking risks in your coursework without fear of penalty	FYSsr07b	2.54	1.09	2.44	1.09	2.50	1.09
c. Evaluating multiple approaches to a problem	FYSsr07c	3.11	.88	3.05	.90	3.09	.89
d. Inventing new methods to arrive at unconventional solutions	FYSsr07d	2.77	1.02	2.69	1.03	2.73	1.02

Note: Results weighted by institution-reported sex, enrollment status, and institution size. For variable ranges, see codebook.

Appendix C: List of NSSE Major Fields Categorizations

Arts
Arts, fine and applied
Architecture
Art history
Music
Theater or drama
Other fine and performing arts
Broadcast communications
Telecommunications
Music or art education

Humanities
English (language and literature)
French (language and literature)
Spanish (language and literature)
Other language and literature
History
Humanities (general)
Philosophy
Religion
Other humanities

Biological Science, Agriculture, & Natural Resources
Biology (general)
Agriculture
Biochemistry or biophysics
Biomedical science
Botany
Cell and molecular biology
Environmental science/studies
Marine science
Microbiology or bacteriology
Natural resources and conservation
Natural science
Neuroscience
Physiology and developmental biology
Zoology
Other agr. and natural resources
Other biological sciences

Physical Science, Mathematics, & Computer Science
Physical sciences (general)
Astronomy
Atmospheric sciences (meteorology)
Chemistry
Computer science
Earth science (including geology)
Mathematics
Physics
Statistics
Other physical sciences

Social Sciences
Social sciences (general)
Anthropology
Economics
Ethnic studies
Gender studies
Geography
International relations
Political science
Psychology
Sociology
Other social sciences

Business
Accounting
Business administration
Entrepreneurial studies
Finance
Hospitality and tourism
International business
Management
Management information systems
Marketing
Organizational leadership or behavior
Supply chain and operations mgnt
Other business

Communications, Media, & Public Relations
Communications (general)
Journalism
Mass communications and media studies
Public relations and advertising
Speech
Other communications

Education
Education (general)
Business education
Early childhood education
Elementary, middle school education
Mathematics education
Physical education
Secondary education
Social studies education
Special education
Other education

Engineering
Engineering (general)
Aero-, astronautical engineering
Bioengineering
Biomedical engineering
Chemical engineering
Civil engineering
Computer engineering and technology
Electrical or electronic engineering
Industrial engineering
Materials engineering
Mechanical engineering
Petroleum engineering
Software engineering
Other engineering

Health Professions
Allied health
Dentistry
Health science
Health technology (medical, dental, laboratory)
Healthcare administration and policy
Kinesiology
Medicine
Nursing
Nutrition and dietetics
Occupational safety and health
Occupational therapy
Pharmacy
Physical therapy
Rehabilitation sciences
Speech therapy
Veterinary science
Other health professions
Veterinary science
Other health professions

Social Service Professions
Criminal justice
Criminology
Forensics
Justice administration
Law
Military science
Public administration, policy
Public safety and emergency management
Social work
Urban planning

*See NSSE Codebook for remaining "Not Categorized" majors. Those with majors not categorized into one of the above areas, as well as those who selected "Undecided" major are not included in analyses for this report (http://nsse.indiana.edu/html/data_codebooks.cfm)

Appendix D. Inferential Test Statistics, Effect Sizes, and Significance for all Cross-tabulation Comparisons

	By Major Field (Single Majors)			
Variable Name	N	Chi-square	Cramer's Phi	p-value
FYSsr01a	24,744	3,409.391	0.131	<.001
FYSsr01b	15,843	1,005.121	0.178	<.001
FYSsr02	24,703	769.875	0.102	<.001
FYSsr03	24,673	1,451.012	0.171	<.001
FYSsr04	24,642	2,111.504	0.207	<.001
FYSsr05	24,657	1,668.886	0.184	<.001
FYSsr06a	24,679	164.451	0.047	<.001
FYSsr06b	24,641	174.982	0.049	<.001
FYSsr06c	24,647	236.707	0.057	<.001
FYSsr06d	24,614	541.323	0.086	<.001
FYSsr06e	24,628	412.673	0.075	<.001
FYSsr06f	24,599	1,226.168	0.129	<.001
FYSsr06g	24,634	3,555.658	0.219	<.001
FYSsr06h	24,527	1,750.723	0.154	<.001
FYSsr06i	24,614	466.254	0.079	<.001
FYSsr06j	24,534	693.585	0.097	<.001
FYSsr07a	24,626	664.597	0.095	<.001
FYSsr07b	24,550	1,015.912	0.117	<.001
FYSsr07c	24,488	385.457	0.072	<.001
FYSsr07d	24,315	517.630	0.084	<.001

	Single vs. Double Major			
Variable Name	N	Chi-square	Cramer's Phi	p-value
FYSsr01a	31,424	123.863	0.063	<.001
FYSsr01b	19,941	52.070	0.051	<.001
FYSsr02	31,361	17.217	0.023	0.001
FYSsr03	31,333	46.325	0.038	<.001
FYSsr04	31,297	2.034	0.008	0.362
FYSsr05	31,304	9.437	0.017	0.009
FYSsr06a	31,330	99.125	0.056	<.001
FYSsr06b	31,287	55.969	0.042	<.001
FYSsr06c	31,289	91.226	0.054	<.001
FYSsr06d	31,248	55.050	0.042	<.001
FYSsr06e	31,272	47.434	0.039	<.001
FYSsr06f	31,235	7.557	0.016	0.056
FYSsr06g	31,275	27.462	0.030	<.001
FYSsr06h	31,144	22.779	0.027	<.001
FYSsr06i	31,252	62.887	0.045	<.001
FYSsr06j	31,152	26.224	0.029	<.001
FYSsr07a	31,270	48.230	0.039	<.001
FYSsr07b	31,170	14.118	0.021	0.003
FYSsr07c	31,102	29.717	0.031	<.001
FYSsr07d	30,870	20.757	0.026	<.001

	Arts vs. Non-Arts Double Majors			
Variable Name	N	Chi-square	Cramer's Phi	p-value
FYSsr01a	4,714	37.034	0.089	<.001
FYSsr01b	2,691	5.140	0.044	0.077
FYSsr02	4,695	0.720	0.012	0.868
FYSsr03	4,696	1.130	0.016	0.568
FYSsr04	4,702	73.797	0.125	<.001
FYSsr05	4,684	8.689	0.043	0.013
FYSsr06a	4,697	12.456	0.051	0.006
FYSsr06b	4,692	10.483	0.047	0.015
FYSsr06c	4,691	20.026	0.065	<.001
FYSsr06d	4,691	11.929	0.050	0.008
FYSsr06e	4,696	6.773	0.038	0.079
FYSsr06f	4,688	10.979	0.048	0.012
FYSsr06g	4,691	41.021	0.094	<.001
FYSsr06h	4,670	9.797	0.046	0.020
FYSsr06i	4,691	12.214	0.051	0.007
FYSsr06j	4,675	4.970	0.033	0.174
FYSsr07a	4,691	8.589	0.037	0.086
FYSsr07b	4,674	16.353	0.059	0.001
FYSsr07c	4,669	4.661	0.032	0.198
FYSsr07d	4,625	5.080	0.033	0.166