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The Academic Success Inventory for College Students: Scale Development and Practical Implications for Use with Students

Abstract

The Academic Success Inventory for College Students (ASICS) is a newly-developed, self-report instrument designed to evaluate academic success in college students. The 50-item instrument has 10 factors that measure general academic skills, career decidedness, internal and external motivation, anxiety, concentration, socializing, personal adjustment, and perceived efficacy of the instructor. The ASICS is a time-efficient, Internet-based survey that evaluates many constructs previously obtained only by administering numerous individual measures. Practical suggestions are given to help advisors and admission officers use the ASICS with college students.

Students drop out of college for a variety of reasons, such as academic failure, personal problems or changes in career plans. Those who fail to attain a college degree have fewer career opportunities, earn less money and achieve lower financial stability than their peers who graduate from college (DesJardines, Ahlburg and McCall 2002, Kane and Rouse 1995). Understanding the specific reasons for individual college student success and failure would help in early identification and remediation of students having academic difficulties.

Success in college has often been predicted using two variables, high school performance as measured by rank or grade point average, and standardized achievement tests scores, such as the SAT or ACT (Rothstein 2004, Zwick and Sklar 2005). However, these variables do not explain all of the variations in academic success due to complicated mediating variables (Pritchard and Wilson 2004, Robbins et al. 2004). Mediating variables are factors not directly related to academic skills that nonetheless have an impact

on student success. These include personal adjustment, mentors, parental modeling, peer group pressure, self-confidence, early school environment, or extracurricular activities. In order to understand students' academic potential and success, it is necessary to take into account broader, non-intellectual variables of college adjustment or success. Improved understanding of academic success in college necessitates the development of complex models that consider multiple social, cognitive and interpersonal variables, as well as multidisciplinary theoretical conceptions (Pascarella and Terenzini 2005).

Measures of Academic Success

There are a variety of measures available that focus on discrete aspects of academic success in college students, such as motivation, career decidedness, academic skills, emotional and psychological factors, and social and interpersonal factors. However, to date there has not been a well-validated instrument that measures these different aspects of academic success in an

integrated, efficient manner. Currently available measures tend to cover discrete constructs, but it is time consuming and expensive to administer individual measures of each of these characteristics.

The Academic Success Inventory for College Students (ASICS) is a comprehensive measure that could be widely and easily used as a screener to identify college students who might be at risk for poor academic progress, and determine appropriate interventions geared towards their specific patterns of strengths and weaknesses. The theoretical basis of the ASICS relied on the work of Astin (1998) regarding student and environment characteristics and Tinto's (1998) work on persistence and departure. Additionally, numerous aspects of motivation theory were considered with respect to self determination (Deci and Ryan 1985), attribution theory (Weiner 1985) and achievement goal theory (Harackiewicz, et al. 2002).

Description of the ASICS

The ASICS has 50 items that measure areas related to academic success, divided into 10 subscales. (The measure can be accessed online by typing in a Web address). Students are initially asked to "Select one class that has been the hardest or most difficult for you within the past year." They are then instructed to answer all items with respect to that class. All items are rated from 1 (Strongly Disagree) to 7 (Strongly Agree). Negatively-worded items are reverse scored so that higher scores on items reflect more positive functioning. Subscale scores are converted into a scale score using a range of 1–100. The following subscales (with descriptions and sample items) comprise the ASICS.

1. **General Academic Skills** (12 items) – a combination of effort expended, study skill and self-organizational strategies. (I made good use of tools, such as planners, calendars or organizers).
2. **Internal Motivation/Confidence** (eight items) – belief in one's abilities to perform well academically, as well as satisfaction and challenge associated with performance. (I enjoyed the challenge of learning just for learning's sake).
3. **Perceived Instructor Efficacy** (five items) – perception of the ability of the instructor to hold the attention of the student, organize, teach, and assess the progress of the student. (The instructor motivated me to do well).
4. **Concentration** (four items) – ability to concentrate and pay close mental attention. (It was easy to keep my mind from wandering).
5. **External Motivation/Future** (four items) – an awareness of the future relevance or importance of the class, with an emphasis on external job-related issues. (I needed to do well in this class to get a good job later).
6. **Socializing** (four items) – appropriate levels of socializing or drinking such that one's academic performance is not hindered. (Sometimes my drinking behavior interfered with my studying).
7. **Career Decidedness** (four items) – progress towards and certainty of one's decision about a career goal. (I am certain about what occupation I want after I graduate).
8. **Lack of Anxiety** (three items) – lack of anxiety or nervousness with regard to studying or test taking. (I was nervous for tests even when I was well prepared).
9. **Personal Adjustment** (three items) – lack of personal issues that detract from one's ability to perform academically. (I had some personal difficulties that affected my performance).
10. **External Motivation/Current** (three items) – motivation to perform, with an emphasis on current external factors such as grades, parents or approval of others (I needed good grades to keep up my GPA).

Evidence for Validity and Reliability of the ASICS

The ASICS' development was based on a pilot study of 315 university students, followed up by a sample of 930 students, both from a large public university in the southeastern United States. Characteristics of the sample were as follows: mean GPA = 2.66 (SD = .99) on a four-point scale; mean age = 19.44(SD = 2.17); females = 58 percent. Ethnicity was Anglo (68 percent), African American (13 percent), Hispanic (11 percent), Asian (three percent) and Other (six percent). The majority of students were in their first year of college.

Exploratory factor analysis determined the subscales of the ASICS. The 10 factors (later converted to subscales) explained 64 percent of the variance, and displayed good item characteristics (Brown 2006; Tabachnick and Fidell 2007). Internal consistency of the 10 factors was measured utilizing Cronbach alphas. These scores tell the degree to which items on a subscale are consistently measuring the same construct, and should be at least .70. The Cronbach alphas for the ASICS were as follows: General Academic Skills = .93, Internal Motivation/Confidence = .86, Perception of Instructor Efficacy = .92, Concentration = .87, External Motivation/Future = .88, Socializing = .84, Career Decidedness = .87, Lack of Anxiety = .77, Personal Adjustment = .86, and External Motivation/Current = .62. Correlations among subscales were quite variable,



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with large correlations found between the following subscales: Socializing and Personal Adjustment ($r = .82$), General Academic Skills and Personal Adjustment ($r = .65$) and Internal Motivation/Confidence and Concentration ($r = .50$).

Discriminant validity was evident in the comparison between a group of students participating in the University Honors Program ($n = 265$) and a group that was on academic probation ($n = 346$). All subscales except External Motivation/Current were significantly different across groups, with students in the Honors Program obtaining scores indicating more positive functioning than the students on academic probation. Results indicated that the 10 scale scores predicted 41 percent of the variation in grades—demonstrating the 10 subscales' predictive validity. Subscales most highly predictive of GPA were Personal Adjustment, General Academic Skills, Internal Motivation/Confidence and Socializing and Concentration.

Practical Use of the ASICS

It is important to be able to evaluate the many areas of functioning that comprise academic success in college students. Relying solely on ability measures, such as college entrance exams or high school grade point averages, will not result in accurate measurements. More accurate would be a measure that can efficiently evaluate the multiple variables that work together to determine academic functioning. Many students applying to college have been to a community college or had prior college work. For these students, the ASICS can be useful in the admission process, as it is a good predictor of grades in college. Admission officers may want to pay particular attention to the subscales measuring Personal Adjustment, Academic Skills and Internal Motivation Confidence, as these were highly predictive of college GPA.

For students in their first year in college, the ASICS can be a useful tool in identifying at-risk students, or those in need of remediation or intervention. The ASICS can target specific areas of potential

difficulty. By comparing scores on the ASICS to students known to perform well (students in an Honors program) versus students known to perform poorly (those on academic probation), we learn more about the specific activities and behaviors that lead to student success. The Honors students were significantly more likely than students on probation to use good study and organizational skills; they were confident in their abilities, gained satisfaction from learning and enjoyed the challenges of learning; they were able to concentrate on their studies; they were more likely to be decided about a career; and they were motivated by the relevance of their courses to future success. Alternately, the students on probation were more likely to report that drinking and partying affected their grades; they were more affected by anxiety and personal problems; and they were more likely to blame their academic difficulties on ineffective instructors. These patterns can be helpful to college advisors as they try to pinpoint those specific areas of functioning that can characterize students who do well academically compared to those who are struggling.

Not surprisingly, highest correlations were found between Personal Adjustment and Socializing. That is, students who reported having personal difficulties and problems were also likely to report high rates of drinking and partying with friends to the detriment of their studying. Additionally, those with personal difficulties reported poor overall skills and effort expended. Small but negative correlations were found between anxiety and the following: general academic skills, external motivation/future and career decidedness. A small amount of anxiety possibly is a positive thing and was seen in students who worked hard and were concerned about future careers and the relationship between current performance and later jobs. Alternately, lacking general academic skills and not deciding on a major could have caused anxiety. Hynd, Holschuh and Nist (2000) found that fear of failure can be a motivating factor in college student achievement.

The ASICS can be accessed, administered and interpreted by any higher education professional. Taking the ASICS does require the use of a computer with Internet access and a printer. Students should be directed to go to the following Web address www.survey.coe.fsu.edu/TakeSurvey.aspx?SurveyID=IIKLI6I5. The ASICS takes about 10 minutes to complete. Once completed, students are directed to print out their responses. They then take their completed ASICS to their counselor, advisor or admission officer. The test administrator can receive complete directions in PDF format by requesting them from the first author at fpvatt@fsu.edu. The directions include a scoring template, a score sheet to record the individual subscale scores, cutoffs for the 25th percentile score for each subscale and recommendations for any subscale falling below the cutoff. At the discretion of the person administering the test, students can be asked to score their own ASICS and bring it to their advisor to discuss their results and go over the suggested recommendations. A brief summary of these recommendations is included below.

The ability of the ASICS to predict GPA makes it useful as an early screener of students who may be at risk for poor academic progress. Based on responses on the ASICS, early remediation can be targeted at specific areas of functioning. The following list of recommendations can be used by advisors to discuss specific interventions for students, based on low scores on subscales of the ASICS.

General Academic Skills

- The student would benefit from using organizational tools, such as planners, calendars, to-do lists, folders, binders, and dividers.
- The student should set achievement goals for each of his or her courses, and then he or she should devise a plan in order to reach each goal. For example, the student should set specific homework/study times for each week in order to obtain an end of the semester goal.
- The student should refer back to the syllabus regularly (for example, weekly or biweekly).
- The student does not appear to be making a substantial effort in his classes. This can result from lack of motivation, personal problems, poor study skills, poor time management, or distractions due to job, personal or family issues. The student should attempt to determine the cause or causes behind his lack of effort, and then address that with the recommendations listed in other areas.

- The student should register for a study skills class or workshop that focuses on study skills, time management, organization and planning, and test-taking skills.
- Given the student's weakness in selecting main ideas, he or she should use outlines with subheadings to help identify main ideas. Additionally, he should try to identify the main idea of each paragraph or section that is read and then summarize it into one or two sentences.
- To make his study time more effective, it is recommended that the student practice creating his own aids such as diagrams, text marking, highlighting, underlining, creating charts and summary sheets, and timelines, etc.

Internal motivation/Confidence

- The student may want to seek counseling or academic consultation to attempt to identify motivations that bring intrinsic rewards (satisfaction, pleasure, knowledge), as opposed to extrinsic rewards (avoiding failure, achieving a benchmark, obtaining material possessions).
- The student might benefit from counseling to work on confidence issues.
- The student might list activities that he or she performs well, identify his or her strengths and activities he or she enjoys, identify and evaluate past successes, and make use of self-affirming statements (I did a good job on that) on a regular basis.

Perceived Efficacy of the Instructor

- The student might reflect on whether dissatisfaction with his instructors is a common perception. If a rare occurrence, no intervention may be necessary. If a common occurrence, the student might consider changing his major or his academic institution. He or she may also self-reflect on whether his interpersonal actions might be contributing to a general dissatisfaction with others, and seek counseling to address this issue.
- The student may want to utilize college-based evaluation tools to better select instructors who are a good match for his or her particular learning style.

Concentration

- The student may wish to consider undergoing further assessment to determine if he or she has an attention problem (e.g. Attention Deficit Hyperactivity Disorder) contributing to his or her academic difficulties.
- Due to his or her difficulty with sustained attention and concentration, the student may need to sit at the front of the classroom or in an area where there are few distractions. He or she may also need to audiotape lectures and transcribe or recopy his notes after class. He or she may also find it helpful to copy another student's notes. He or she may also need to obtain a note-taker.
- Should the student continue to experience difficulties sustaining attention when reading, he may try to read for a set amount of time with intermittently scheduled breaks. For example, he or she may read for 15 minutes, take a five-minute break then read for another 15 minutes. Once he or she is accustomed to maintaining concentration during the 15-minute intervals, he or she may gradually increase the amount of time in which he or she reads.

External Motivation/Current and Future

- The student should try to identify both short- and long-term outcomes of academic success and link them to rewards.
- Short-term outcomes include individual assignment grades, exam grades and course grades. Long-term outcomes include semester and overall GPA, college graduation, internships, graduate school, jobs, buying a home, or lifestyle choices. The student should identify those that are important to him or her.
- Activities related to short-term outcome may include going to the library, reading one page, reading one chapter, reading one book, taking notes, writing one page, writing one paper, studying for a set length of time. A series of short-term activities generally culminate in a long-term goal. The student should identify those activities associated with his or her short- and long-term goals.
- To increase motivation in school-related activities, the student may benefit from setting short-term goals for himself or herself (e.g. I will read over my notes before class today). It may

be beneficial for him or her to reward himself or herself for achieving these goals (e.g. If I read my notes before class and rewrite my notes after class, I can watch my favorite television show for half an hour instead of studying at that time).

Socializing

- The student would benefit from counseling. Issues addressed during counseling should include possible drug or alcohol use, as well as whether college studies are an appropriate endeavor at this time.
- The student should be encouraged to explore his or her motivation to remain in school, and may benefit from taking time off and exploring options other than college until he or she chooses to make a firm commitment to academic work.

Career Decidedness

- The student does not appear to have a firm commitment to a major or a career objective. Students such as this often have a difficult time with motivation, as their classes may not appear relevant, useful or interesting. The student may want to explore opportunities to solidify his major and career choices.
- To learn about career opportunities that may be the best match for the student's own pattern of aptitude and abilities, it is recommended that he utilize the career counseling services available through his college career center.
- The student may want to enroll in a course at his college on career development: particularly one that focuses on self-assessment, career resources and employability skill guidance.

Lack of Anxiety

- To help combat anxiety that may be negatively affecting his academic performance, the student may want to investigate alternative ways to relieve stress, such as exercise or meditation. He or she may also wish to seek relaxation training offered from a college counseling center or private counselor.

Personal Adjustment

- The student would benefit from counseling. Issues addressed during counseling should include any symptoms related to his psychological concerns.

Conclusion

The ASICS can be especially helpful for higher education professionals such as advisors. It can be administered individually, or to large groups in class settings. For example, at Florida State University, a mandatory class called Academic Success has been developed for students whose GPA falls below 2.0 on a 4.0 scale. The ASICS is given to entire classes of students and they use the results to determine those areas of functioning most in need of remediation. At some universities, students with academic difficulties are routinely routed into study skills remediation. However, we have found that solution to be a one-size-fits-all approach that may not be useful for many students. While the ASICS can identify those students who need study skills via the General Skills subscale, it can also identify those students who may be better served via a referral for an ADHD evaluation or seeing a counselor at the Student Counseling Center for help with anxiety or personal issues. The advisor can use the results to work with each student on a personalized Individualized Educational Plan. Areas where the student falls below the 25th percentile should be noted as areas needing remediation. Then, using the suggested recommendations, the student can devise goals for self-improvement.

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Admission officers can also use the ASICS, but only when the student comes from a community college or has prior coursework at another college or university. Because the questions deal with functioning at the college level, they are not easily answered by high school students. For example, questions involving doing well in order to keep a scholarship, knowing ones career goal after graduation or having selected a major would not be relevant for high school students. In cases where the student has prior college experience, the admission officer could easily use the ASICS as one part of a multi-modal battery. The ASICS is significantly correlated with college GPA, and several subscales give information about ones motivation to do college -level work.

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