

“IN THEIR OWN WORDS”

COLLEGE READINESS AMONG A SAMPLE OF UNDERGRADUATE STUDENTS AT WASHINGTON STATE UNIVERSITY: SUMMARY DATA

Paul Verrell & Norah McCabe, with consultation and assistance from Victor Asher, Erin Boland, Erica Feldman & Brittany Perkins

Introduction

With growing concerns at the national level about the success of K-16 education in producing future workers, especially but not only in STEM subjects, there is a very distinct – indeed, overwhelming – impression among instructors that many undergraduates are under-prepared for the challenges posed by higher education. Under-preparation extends to both subject knowledge as well as motivation/attitude, the latter often referred to as ‘habits of mind.’

With freshman-to-sophomore retention involving the loss of about three in 10, our institution exceeds the national average, but action clearly is needed to increase retention further. In order to assess student preparedness based on HS experience, and move toward determining its impact on success at WSU, we surveyed the opinions of individuals enrolled in two 100-level classes using a standard questionnaire. Our results, a summary of which is provided here, indicate that students are aware of their own shortcomings in habits of mind and certain academic skills, and their specific responses provide a basis for strengthening the bridge at both ends between HS and higher education.

Method

Students enrolled in Biol 102 (largely non-STEM) and Biol 107 (STEM) were surveyed during the third week of the fall semester in 2010 using a standard questionnaire. Overall response rate was 87% (sample size = 677 respondents).

Results

Demography

Our complete sample (median age = 20 years, 59% female) consisted of 68% freshmen and sophomores. Non-STEM students constituted 55% of respondents. 80% of respondents came to WSU directly from high school, 12% from a two-year college.

Preparation by HS for academic study at WSU

70% of respondents reported that HS prepared them well, 28% poorly (with high agreement between non-STEM, 70%, and STEM, 72%, students for partitioned data). When faced with a more specific set of questions concerning preparedness, between one in five and one in three students in our total data set responded that their HSs prepared them poorly in terms of such habits and skills as attention to detail, studying to really learn and effective time management.

Effect of prior attendance at a two-year college

For our complete sample, attendance at a two-year college greatly affected how well students perceived their preparedness by HS for WSU. While 81% of students coming to WSU directly from HS reported that they were well-prepared by their HS experience, only 54% of prior attendees at two-year colleges responded positively. Further partitioning of data (e.g., non-STEM versus STEM) was not practical due to small sample sizes for most comparisons.

The academic challenge posed by WSU

For our total data set, 51% of respondents found WSU to be at least somewhat more challenging than they expected; only 8% found it at least somewhat less challenging.

For partitioned data, 47% of non-STEM and 56% of STEM respondents found WSU to be at least somewhat more challenging than they expected; respective responses were 50% and 44% for WSU being less challenging.

When asked what habits and skills they wish they had developed further in HS, 48% of all respondents identified effective time management, 27%

independent thought, 16% effective writing and 10% effective reading. Only 11% identified a deficiency in subject knowledge. Data partitioned between non-STEM and STEM students revealed only minor differences between these two groups.

Habits and skills that need to be learned at WSU

These data match approximately those obtained for HS preparedness. For our total data set, respondents identified effective time management (40%), and efficient writing (13%) and reading (8%) as important. Disappointingly, only 15% mentioned independent thinking, 9% subject knowledge, and 8% studying to understand and remember.

For partitioned data, effective time management scored highly for both non-STEM and STEM respondents (34% and 43%, respectively). Data for efficient writing and reading were similar to those obtained for the total data set. Only 15% of non-STEM and 13% of STEM students responded that they intended to develop the ability to think independently, and only 8% and 11% respectively mentioned acquisition of subject knowledge.

Further analyses of STEM students

STEM data were separated by academic standing into self-identified freshman, sophomore, junior and senior categories. Comparing the extremes, 66% of (intended) STEM freshmen reported WSU to be at least somewhat more challenging than expected, compared to 36% of seniors.

In terms of how well their HSs prepared them to meet WSU's academic challenges, 79% of (intended) STEM freshmen reported good preparation compared to 63% of seniors.

Discussion

While our findings may be of little surprise to instructors of college-level courses (especially lower-division ones), it is very important to note that *they are based on students' own perceptions*. It is these that most directly influence retention rates, graduation rates and overall academic performance for students pursuing education beyond 12th grade.

While students appear satisfied overall with their HS preparedness, they do identify shortcomings in terms of a number of habits of mind and skills, especially effective time management. It is perhaps not surprising that this is the Number One habit they wish to develop further at WSU. It is interesting that this overall perception of good overall preparedness by HS is lower for students attending two-year colleges before moving to WSU.

If the goal of a WSU education is to challenge students academically, then we are doing quite well. About one in two students overall find WSU at least somewhat more challenging than they expected. This level of challenge is a little higher for STEM students specifically – those who will contribute most to addressing our ‘Sputnik moment,’ as identified recently by President Obama – at around seven out of 10 for freshmen.

Our summary data indicate that, despite an overall perception of preparedness by HS, our undergraduates are challenged by their WSU experience, at least early in their careers here. Self-identified challenges include, but are not limited to, effective time management, and refinement of effective writing and reading skills. We see no reason why similar results would not be obtained for other public institutions in our state.

What is disappointing is the apparent disregard that our students have in developing intellectual abilities of ‘universal’ importance, such as the ability (and desire) to study to understand and remember, and to think independently (both related to higher-level skills in the hierarchy of Bloom’s Taxonomy of cognition).

Our data provide clear directions for strengthening habits of mind in HS to ensure greater smoothness in the transition from HS to higher education and beyond, and to success in such efforts (whether students choose higher education or enter straight into the workforce). The comments of the students themselves indicate that greater opportunities to develop further strategies for effective time management and to refine writing and reading skills would be highly beneficial in their last few grades of HS. Furthermore, we suggest that maintaining that sense of wonderment in the world shown, in our experience, enthusiastically by middle schoolers be nurtured and encouraged for later. It does not bode well when so few

WSU students express a motivation to think independently and master their chosen discipline.

Also, our findings provide a compelling case for the importance of providing WSU freshmen and sophomores (not to ignore upperclassmen) with repeated opportunities to further develop habits and skills that will maximize their academic success, and promote a greater motivation toward intellectual advancement overall. These opportunities should include an increased number of and access to relevant courses, workshops and seminars, not just for at-risk students but for all (perhaps made compulsory rather than optional). The involvement in such programs of both professional advisors and faculty is crucial.

We suggest that college readiness is a shared responsibility, and that more needs to be done to strengthen the bridge between HS and what lies beyond (we stress that most of the habits and skills we discuss are beneficial for *everyone*, not just college students). One of us (PV) is working to increase the awareness of these issues to early WSU freshmen, with specific suggestions for enhancing success. All of us would very much like to open or join a dialogue with teams on the HS side of the bridge.