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DataBytes

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Assessing General Education

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Alongside Missouri Southern's *mission* and *vision*, reviewed last spring, the Faculty Senate, Staff Senate, and Board of Governors affirmed the *values* set forth in our strategic plan. The values laid out are goals set for the university, including faculty, staff, and students, to strive to meet through its collective efforts. These values consist of preparing students to be global citizens through *international education*, instilling a wide breadth of knowledge through a *liberal arts education*, providing an environment of exemplary *teaching and learning*, ensuring academic, personal, and career *student success*, and finally encouraging student engagement through *community service*.

This issue of DataBytes focuses on Missouri Southern State University's value of imparting a serviceable liberal arts education onto its students. At Missouri Southern, this value is met through its *General Education Curriculum*.

General Education

In an effort to prepare students for a career in the 21st century marketplace, Missouri Southern has, as outlined in its

course catalog, set itself a goal to provide students with a wide breadth of knowledge and skills in addition to the deep, specialized knowledge required for completing major course work.

The general education goals set for students at MSSU, as outlined in the MSSU course catalog, include a combination of state-level mandates and institution-level values. First, students are expected to gain knowledge in four skill-related areas (*Communicating, Higher-Order Thinking, Valuing, and Managing Information*). Second, students are expected to retain information in four knowledge areas (*Social and Behavioral Sciences, Humanities and Fine Arts, Mathematics, and Life and Physical Sciences*). Additionally, MSSU's designation as "a statewide institution of international or global education" inspires a goal for students to gain a global perspective through an *international cultural studies* curriculum. Finally, in its effort to bestow students with skills to lead

ETS® Proficiency Profile

Seniors (n = 107) scored an average of 115.4 in mathematics, outperforming national (114.0) and peer (114.3) scores. Put in context, MSSU scored better than 71% of national and 60% of selected peer scores.

When asked about the cost/benefit of an MSSU education, 51% of seniors tested said the benefit of attending MSSU outweighed the cost; the other 49% said the benefit was equal to the cost. No one said the cost outweighed the benefit.

productive and well-rounded lives, MSSU has placed a particular focus on all aspects of *health and wellness*, including physical, emotional, spiritual, social, intellectual, and financial.

For its part in determining whether the University is meeting its 10 stated goals, the General Education Committee (GEC), comprised of administration and faculty, has been charged to review the General Education Curriculum to determine how well the goals are being met. GEC seeks to fulfill this charge through a multitude of methods, one of which is the Educational Testing Service's Proficiency Profile (ETS-PP).

GEC, comprised of administration and faculty, ...determines how well the curriculum goals are being met

Measure – Educational Testing Service Proficiency Profile

This national, standardized, 40-item exam addresses six of MSSU's ten goals. The ETS-PP provides an overall score, four subscores (reading, critical thinking, writing, and mathematics), and three context-based subscores (natural sciences, humanities, and social sciences). Overall scores range from 400-500 while subscores range from 100-130.

Data Collection

MSSU Data

Data (n = 107) consisted of scores from a stratified random sample of seniors having taken greater than 90 hours: 28% from Plaster School of Business,

35% from The School of Arts and Sciences, 18% from The School of Education, 10% from The School of Health Sciences, and 9% Multi-Interdisciplinary Studies. The makeup of the MSSU sample consisted of more women (62%) than men (38%), more white students (85%) than African American (5%) and other students (10%), and most were overwhelmingly between the ages of 20 and 29 (72%). These demographics do not differ significantly from those reported most recently in the MSSU Factbook. As such, it is reasonable to conclude MSSU's ETS-PP test-taking sample was representative of the university as a whole.

Comparative Data

ETS maintains a national repository of data from every institution that administers its exam. For the purposes of this report, two comparative institution groups were selected. The first included all other US institutions that are also Carnegie classified Baccalaureate (Liberal Arts) Colleges I and II along with MSSU (n=92 institutions and 28,499 seniors). Additionally, results from a more specific, custom-selected peer-institution group (n=10) were generated to provide a picture of how MSSU performed compared to similar institutions. Variables selected to define this peer group included: Carnegie classification (Baccalaureate Colleges, Diverse Fields, Public) demographic similarities, population, control, and location.

School Name	State	# of Students
Clayton State University	GA	819
Elizabeth City State University	NC	49
Lake Superior State University	MI	942
Lewis-Clark State College	ID	154
Missouri State University	MO	10,399
Missouri Western State University	MO	2,598
Northwest Missouri State University	MO	182
Southeast Missouri State University	MO	4,121
University of South Carolina - Aiken	SC	572
University of South Carolina - Upstate	SC	467
Total		20,303

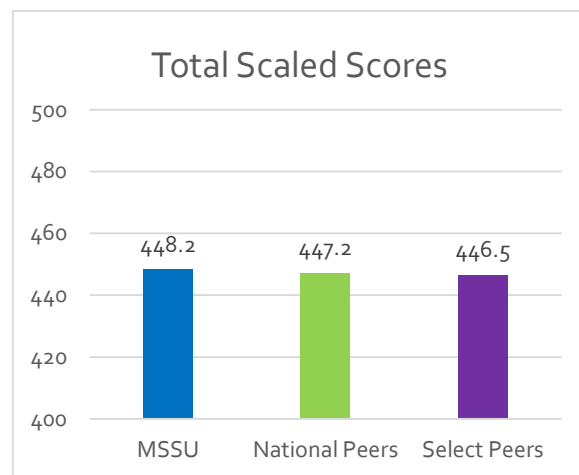
National Survey Results - The 2016 national comparative data set for seniors consists of 59% women, 41% men, 71% white students, 15% African American, 14% other, and 85% between the ages of 20 and 29. These demographics do not differ significantly from those reported in the most recent MSSU Factbook.

Results

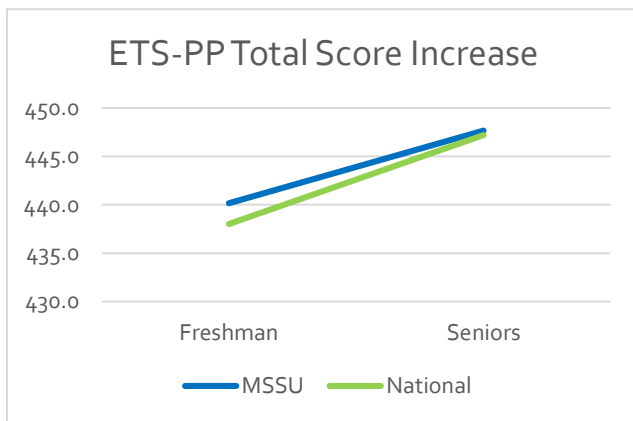
Total Scaled Scores

The total scaled score for each participating institution is calculated by averaging its individuals' total scores. Individual scores are scaled to range between 400 and 500 points. In this respect, MSSU ($m = 448.2$) slightly outperformed seniors at national peer institutions

($m = 447.2$) and at selected peer institutions ($m = 446.5$). MSSU scored in the 55th and 50th percentiles compared to the group of national institutions and of the selected peer institutions, respectively. Research findings from ETS indicated that our sample of n=107 was sufficient for meaningful analyses of the data.



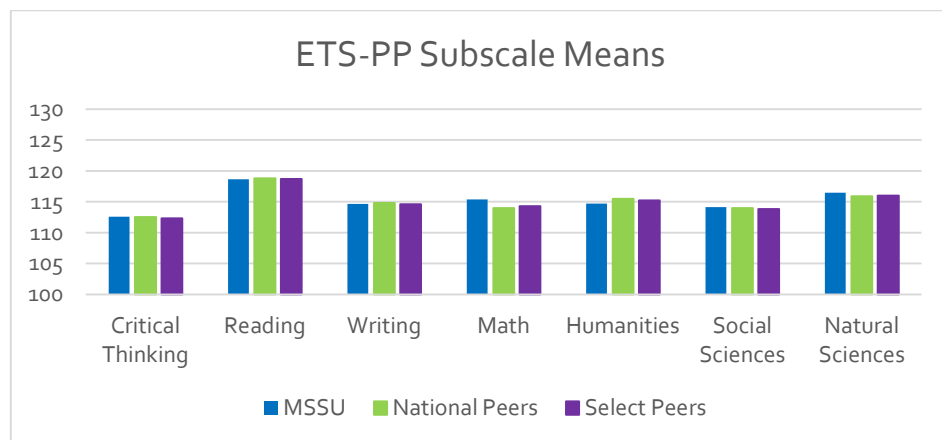
To further investigate the effect of MSSU's general education program over time, archived first-year scores were compared to senior scores ($n = 46$) for students who took the exam both times. As expected, of the students who took the ETS-PP as freshmen, scores increased from 440.2 to 447.7 as seniors. To determine whether MSSU scores



increased above and beyond national increases in the same time span (2011-2016), first-year cohort scores for the national institutions were computed in order to observe the national increase ($m = 438.0$ to $m = 447.2$). MSSU's pre-post gains and national comparison cohort scores during the same years are displayed in the figure above.

Subscores

ETS-PP subscore means are calculated for each of the four skills-based areas and three context-based areas. These scores range between 100 and 130. As with the total scaled scores, MSSU's subscale means were very similar to the national and selected peer institute means with a few exceptions. MSSU's mathematics score ($m = 115.4$) outperformed seniors at both national peer institutions ($m = 114.0$) and selected peer institutions ($m = 114.3$). Likewise, MSSU's natural science score ($m = 116.5$) surpassed scores for both national peers ($m = 115.9$) and selected peers ($m = 116.0$). In the humanities, however, MSSU's score ($m = 114.7$) fell below national ($m = 115.5$) and peer ($m = 115.2$) comparisons.



Proficiency Classifications

The ETS-PP evaluates students in three skills areas, each of which has three levels. The skills measured are *reading and critical thinking*, *writing*, and *mathematics*. Each skill domain has three levels, increasing from basic skills met (Level 1) to complex reasoning (Level 3). Every student who takes the ETS-PP receives a ranking on each level of each skill. These three rankings are *proficient*, *marginal*, and *not proficient*. To clarify, each student receives a proficiency classification, either *P*, *M*, or *NP* for each of three levels for each of three skill areas.

In most areas, MSSU ranks largely comparable to both national and selected peer institutions, but still has room to improve. For example, MSSU's scores in proficiency were similar to or slightly above national and selected peer institutions at the lower

levels of reading and writing. However, MSSU did not perform as well at Level 3 reading (critical thinking) and writing. The exception to the finding that MSSU's seniors are better at lower-level skills and not as proficient at higher-level skills is in the domain of mathematics.

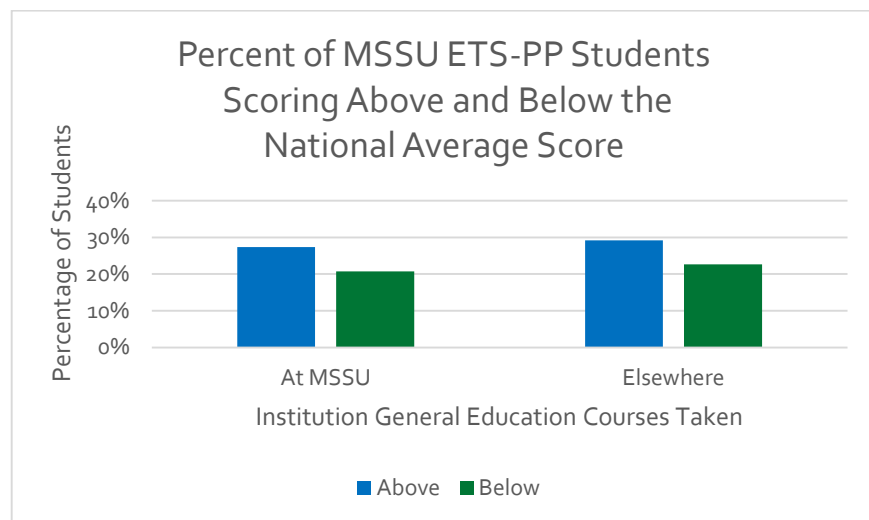
In mathematics, MSSU seniors stand above peer institutions. For Level 1 Math, MSSU has 14% more seniors ranked *proficient* than other schools. Likewise, MSSU has 5% more seniors ranked *marginal* on Level 2 Math than these other schools. MSSU also matches these other schools for *proficient* seniors at Level 3 Math and beats all other schools for lower *not proficient* ranking in all three math levels. These findings suggest that students who have accumulated over 90 semester hours at MSSU are skilled in general mathematics. Results should be interpreted with caution, however, as these students completed 90 hours. MSSU should continue to devote attention to the fact that some students who earn grades of D, F or W in first-year mathematics subsequently leave the university.

MSSU Student Information

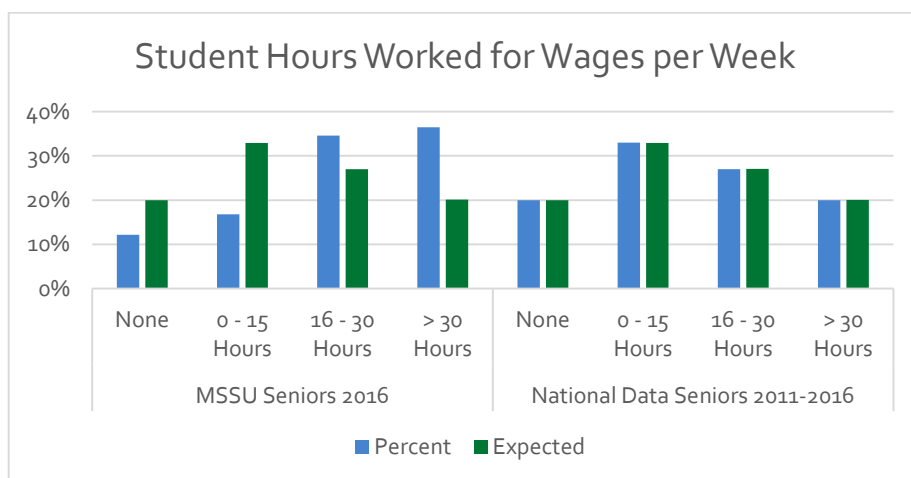
The ETS-PP affords testing institutions the ability to ask customized questions to find more about their particular students. At MSSU, the questions posed to ETS-PP taking students included where they took their general education courses, how many hours they work for wages in addition to their school work, whether they felt the benefits of their education outweighed the costs, and how willing they would be to recommend MSSU to a college bound high school senior.

General Education at MSSU – In using the ETS-PP to assess MSSU's general education curriculum, it is important to determine whether the students tested are representing the efforts of MSSU, or whether they received the majority of their general education knowledge elsewhere. This sample of MSSU seniors consisted of a slight majority that received their general education requirements elsewhere

(52%). As shown in the figure below, ETS-PP scores did not appear to differ depending on where students took their general education courses.



Student Wage Work – Of the students who took the ETS-PP, more MSSU seniors (88%) said they work for wages than the national sample (80%). On this item, students were asked to select one of four ordinal options: 0 hours, 1-15 hours, 16-30 hours, or over 30 hours per week. MSSU seniors indicated that they work more than would otherwise be expected based on the national sample. For example, MSSU students responded they work at both 16-30 hours (35%) and over 30 hours (36%) at higher rates than would be expected (27% and 20% respectively, $\chi^2(3) = .28.402, p < .001$). Given these results, one could conclude that MSSU students work more than students from similar national universities.



Value for Cost – MSSU students were asked whether they believed that the benefits gained from their time at MSSU outweighed the costs. Students were presented with three options: Benefits outweighed costs, benefits equaled costs, and costs outweighed benefits. 51% of students said that their benefits outweighed their costs

while 49% marked equal costs and benefits. Not a single of the 107 MSSU seniors remarked that their costs outweighed the benefits that the university has provided them.

MSSU Recommendations – Finally, ETS-PP participating students were asked on a scale from 1-5 (1 = Not at all willing, 5 = extremely willing) how willing they would be to recommend MSSU to a college-bound senior in high school. Responses produced an average indicating students were more willing than not to recommend MSSU ($m = 3.87, SD = .922$). Perhaps more importantly, however, 92.6% of students registered no hesitation to recommend Missouri Southern to high school students by indicating that they were willing, strongly willing, or extremely willing.

Student Motivation

Four best practices were employed to ensure high levels of test-taker motivation. First, the exam was proctored. Second, President Dr. Alan Marble and Provost Dr. Paula Carson addressed students at the beginning of the testing sessions and explained the importance of doing their best on the exam. Third, an article explaining the exam and use of its results was published in *The Chart* prior to the testing date. Finally, local restaurants supported students by providing each with a \$15-\$20 gift card at the close of the testing session.

Conclusion

According to metrics available through the ETS-PP exam, Missouri Southern seniors performed comparably to national and selected peers. MSSU students registered a higher average total scaled score than the two comparator institution groups. Subscores in mathematics and natural sciences were higher than national and peer averages while subscores in the humanities were lower.

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