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High-Impact Honors Practices: Success Outcomes among Honors and Comparable High-Achieving Non-Honors Students at Eastern Kentucky University

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High-Impact Honors Practices: Success Outcomes among Honors and Comparable High-Achieving Non-Honors Students at Eastern Kentucky University

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EASTERN KENTUCKY UNIVERSITY

Alexander Astin's Inputs-Environment-Outcomes (I-E-O) model for longitudinal study of student success in higher education challenges researchers to account explicitly for the wide range of educational, social, and cultural backgrounds that students bring with them to college. Astin's approach factors in an understanding that educational outcomes are associated not only with the various educational environments to which students are exposed during their college years, but also with the inputs of these students—the factors that shaped them long before they first arrived in a university classroom. Meaningful conclusions concerning factors that contribute to student success must take into account the complex interactions of all three of the I-E-O components. Inputs precede and inform student choices of and attitudes toward their environments, and both

play significant and interrelated roles in shaping educational outcomes for each student (Astin 1993).

Applied to questions of the impact and value of honors education, the I-E-O approach demonstrates the need to be expansive and iterative, rather than reductive, in designing strategies to assess the impact of honors educational practices. Honors administrators, staff, and faculty often promote and defend the value of their programs by appealing to outcomes of honors students, such as retention and graduation rates, that are far superior to those among the general student population. Attributing those superior outcomes to the supposed benefits of honors educational practices, however, rings hollow when the differential inputs between honors student populations and non-honors student populations are not taken into account. Success in the classroom typically made the honors students eligible for honors education in the first place, and those students would be expected to persist and graduate at much higher rates than the general student population, with or without honors educational experiences. In order to measure the impact of honors educational practices on student success outcomes, researchers must control for these inputs. One way to accomplish this task is to use a comparison group that resembles the honors student group in terms of academic preparation and readiness for college.

To date, only a handful of studies have controlled for student inputs in this way by comparing honors students to high-achieving, non-honors subgroups among general student populations, that is, students with prior educational attainment levels that are similar to those of the honors students in the study (e.g., Shusok 2006). Keller and Lacy (2013) compiled data concerning students entering the honors program at Colorado State University (CSU) from 2005 to 2008, comparing them to a similarly sized control group of high-achieving incoming CSU students who did not participate in honors but who, as a group, had average test scores and high school GPAs comparable to the honors student cohort. They found only a slight difference in second-year retention between the honors (92.9%) and high-achieving non-honors (87.9%) groups. Of greater interest to Keller and Lacy (2013) was a more dramatic advantage for the honors cohort over the comparable non-honors population

in terms of four-year (64.2% vs. 55.8%), five-year (81.9% vs. 69.6%), and six-year (88.9% vs. 74.9%) graduation rates from CSU.

By contrast, a similar comparative study by Slavin, Coladarci, and Pratt (2008) involving honors and high-achieving non-honors cohorts at the University of Maine found only an insignificant advantage for the honors students in terms of four-year graduation rates (64% vs. 60%), but a genuine and significant honors advantage in second-year retention (94% vs. 85%). More troubling were the findings of Cosgrove (2004), who studied a group of 112 honors students and 108 comparable non-honors students at three different regional universities in the Pennsylvania State University system from 1997 to 2002. Of the 112 honors students, only 30 graduated with all honors requirements completed within five years. Among the partial honors completers (i.e., those who started in honors but dropped honors at some point in college) Cosgrove (2004) found five-year graduation rates (82%) to be only slightly higher than those of the group of similar non-honors students (76%). Data of this sort collected thus far are inconclusive in terms of being able to assert with confidence the value added of honors educational experiences, much less which features of honors environments most closely correlate with student success outcomes.

This study constitutes a fresh empirical contribution to this conversation, grounded in an extensive database of honors and non-honors students. The honors group consists of 590 first-year students entering the Eastern Kentucky University (EKU) Honors Program in their first semester between fall 2010 and fall 2015, while the non-honors group contains 610 first-year students entering EKU during that same period with a prior educational profile that resembles that of the honors students (in ways specified later in the “Study Design” section) but who did not participate in the honors program. Differences in second-year retention and graduation rates were more dramatic in favor of the honors group than those found by Keller and Lacy (2013) and Slavin et al. (2008). Following examination of these data, this study also takes a preliminary step toward illuminating more clearly the environments of the EKU Honors Program and the specific effects of its high-impact educational practices and programming (Kuh 2008). Students who chose

to be involved in at least one of the additional high-impact practices of the honors experience at ECU are distinguished from those who did not participate in one of these activities and are therefore labeled as less involved. Within this distinction, strong associations are found between participation in these high-impact practices and student success outcomes.

EASTERN KENTUCKY UNIVERSITY AND THE ECU HONORS PROGRAM

Located in Richmond, Kentucky, on the southern edge of the Lexington metropolitan area, Eastern Kentucky University is a public comprehensive “master’s” university with a total enrollment of just under 17,000 students, including approximately 14,200 undergraduates. Growing from its normal school or teacher college roots, ECU has traditionally drawn heavily from its service region, the coal towns of Appalachian southeastern Kentucky. With the declining populations, however, of those areas in recent decades, the university has increasingly marketed itself in the region’s larger cities. Today, only about one third of ECU students come from ECU’s traditional service region. Roughly half of ECU students in the 2016–2017 academic year came from the nearby metropolitan areas of Louisville, Cincinnati, and Lexington. In addition, nearly one third of all ECU students identify as first-generation college attendees.

The ECU Honors Program, founded in 1988, enrolls approximately 500 students whose social and demographic profile generally matches that of the student body as a whole. The average composite ACT score of incoming honors program students is 28–29, while the average unweighted high school GPA is 3.8–3.9. The ECU Honors Program provides an excellent case for examining the value added to the undergraduate experience via high-impact honors pedagogies and programming for two reasons. First, the ECU Honors Program provides a uniquely intensive high-impact curriculum in which honors seminars are team-taught by faculty from two different academic disciplines. Every student going through the full program takes 18 credit hours of the total 25 hours of honors curriculum

within the context of these team-taught interdisciplinary honors seminars. In our most recent external program review, the outside evaluators, both past presidents of the National Collegiate Honors Council (NCHC), said the following about our honors curriculum in the “EKU Honors Program External Program Review” (2015):

The honors curriculum at EKU is a distinctive and powerful model of exemplary honors education. With the emphasis on team-taught interdisciplinary courses, it exemplifies characteristics valued nationally in honors pedagogy. Most honors programs and colleges have one or two interdisciplinary courses required in the curriculum; at EKU Honors, interdisciplinarity and team-teaching are true hallmarks, and the program is well respected nationally.

Second, the EKU Honors Program has an unusually rich tradition of providing opportunities for undergraduate research presentations at venues such as the annual meetings of the NCHC, the Southern Regional Honors Council (SRHC), and the National Council of Undergraduate Research (NCUR). Since 1990, more than 1,000 EKU Honors Program students have made presentations at the annual meeting of the NCHC, making the program the leader in NCHC student presentations among all honors programs and colleges nationwide. The program has a \$1.8 million endowment dedicated specifically to creating travel and learning opportunities for honors students. Income from this endowment each year is spent on national and regional conference presentation travel, as well as study abroad and study away grants for which honors students may apply. In short, all students in the EKU Honors Program experience a distinctive high-impact educational experience via their 18 credit hours of interdisciplinary, team-taught coursework, allowing for a clear distinction to be made between them as a group on the one hand and the comparable non-honors group on the other. Furthermore, within the honors student group itself, the exceptionally high numbers of students who participate in additional high-impact experiences of their choosing, such as undergraduate research conference presentations, allow for a meaningful distinction to be

drawn between honors students who do and do not choose such activities. Controlling for these inputs, the data presented here allow for meaningful insight into the effects of high-impact honors pedagogical and programming practices on student success outcomes.

STUDY DESIGN

In an attempt to determine the value added of the ECU Honors Program experience, two groups were examined. The first consists of students who began in the ECU Honors Program in their first semester between fall 2010 and fall 2015. Honors program records were used to compile this data set, which comprises 590 students who started in the honors program at the beginning of their college career. For each of these students, we consider six outcome measures: (1) second-year retention within the honors program, (2) second-year retention at the university, (3) graduation as an honors scholar from the ECU Honors Program, (4) graduation from the university with a bachelor's degree within four years, (5) graduation from the university with a bachelor's degree within five years, and (6) involvement within the honors program.

We measure second-year retention within the honors program and at the university as being a member of the honors program and/or enrolled at the university in the fall of a student's second year after matriculation. Honors program records were used both to determine second-year retention within the honors program and honors scholar graduation, meaning a student's having completed the honors curriculum, successfully written and presented an honors thesis, and graduated from the university. We used university records to determine second-year retention within the university, as well as four- and five-year graduation rates from ECU. Graduation rate data are limited by the fact that five-year graduation data are only readily available for the fall 2010–fall 2012 cohorts, and four-year graduation data are only available for the fall 2010–fall 2013 cohorts, due to the timing of this study, with data collected during the summer of 2017.

To be considered highly involved in the honors program, students participated in one of two groups of high-impact activities.

The first consists of three conferences at which students could present research during their time at ECU: the annual meeting of the SRHC, the annual meeting of the NCHC, or the annual meeting of NCUR. As previously discussed, the rich tradition of student presentations at these conferences made this accomplishment a natural marker of involvement within the ECU Honors Program. The second group of activities includes opportunities for student leadership within the honors program, namely three specific endeavors. Students who served as officers in the Honors Student Advisory Council (HSAC), the student governing body of the honors program, were considered highly involved. Between five and eight students each year fill a variety of offices on the HSAC. These students are elected by their peers each year and plan and execute service and social activities for the honors program. Peer mentors for the Honors Seminar (HON 100), the first-year student success seminar for honors students, were also included in this group. This cohort would typically include five to six students each year. These students are selected by the instructor of the section they mentor and perform a variety of activities, including meeting with first-year students and serving as sources of valuable honors information from the student perspective. Students selected as Honors Ambassadors made up the last part of the highly involved group. Serving as a resource in recruiting prospective honors students, ten students are selected each year, and they travel to events with the program coordinator and university admissions staff. Records of participation in all of these activities were consulted to create this group of 113 highly involved students within the ECU Honors Program, 19.5 percent of the total group of 590 honors students. One limitation should be noted when discussing this measurement of involvement, and that is that the fall 2014 and fall 2015 cohorts of students still have opportunities to participate in these activities. This total number of highly involved students may increase if these data are analyzed again in a few years.

Our study design involves identification of a second group: comparable non-honors students. The goal behind establishing the second group was to identify a sample of ECU students who did not participate in the honors program but who came into the university

similarly academically prepared in terms of widely recognized measures of college preparedness. This data set allows for comparisons of students who should have comparable inputs using Astin's I-E-O model. Creation of this group involved three subsets of students. The first consists of 12 students who applied to and were accepted to the ECU Honors Program from 2010 to 2015, matriculated to ECU, but chose not to participate in the honors program. This cohort is likely the closest one can get to a true control group: these students met the criteria for becoming an honors program student, were selected to do so, but never entered the program. Because this number is small, the Office of Institutional Research at ECU provided the other two subgroups of students for this non-honors group. One consists of 299 students who enrolled in the university First-Year Writing Seminar (English 105) during 2010–2015. English 105 is an accelerated writing course with a prerequisite of an ACT English subscore of 28 or higher or an SAT verbal score of 660 or higher. Students who earn an A or B in English 105 receive six credit hours and fulfill their written communication general education requirements with one course rather than taking both English 101 and English 102 (ECU *Undergraduate Catalog* 2017). English 105 is often presented as an alternative to the standard first-year writing course (English 101) for academically well-prepared first-year students during their initial orientation to the university, and because of its test score prerequisites, it seems like a natural choice to include in the non-honors group. Since students choose to enroll in English 105 (rather than English 101), this group provided students who seemed to be seeking more in-depth educational experiences. In turn, adding these students to the group mitigates to some extent a possible limitation of the research: that students must choose to apply to the honors program and may have higher levels of motivation to persist.

To bring this group closer to the total of 590 honors students, institutional research staff provided an additional 299 students who are a random sample of all students entering ECU during fall 2010–fall 2015 with a 28 or higher composite ACT score and a 3.8 or higher unweighted high school GPA. While the ECU Honors Program does not have minimum ACT or high school GPA

requirements, these numbers are roughly equal to the incoming class averages of honors program students. These three approaches generated a comparable non-honors group of 610 students.

Institutional research provided outcome measures similar to those described above for each student in the non-honors data set, using the Banner student information system: (1) second-year retention at the university, (2) graduation from the university with a bachelor's degree within four years, and (3) graduation from the university with a bachelor's degree within five years. Again, graduation rate data are limited by the timing of this study, so five-year graduation data are only considered for the fall 2010–2012 cohorts, and four-year graduation data are only considered for the fall 2010–fall 2013 cohorts.

Once all data had been collected, several comparisons were made, and we present those in the results section below. We made comparisons between the honors and comparable non-honors groups, as well as between the highly involved honors and the less involved honors students.

RESULTS

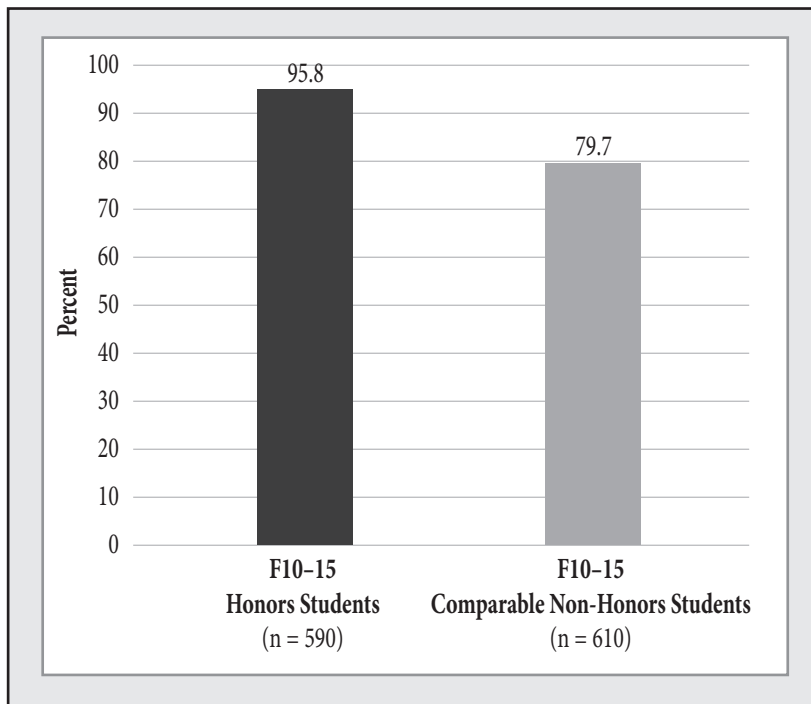
Honors vs. Comparable Non-Honors Second-Year Retention

We first turn to an analysis of a standard measure of second-year retention. This measure is the only one in which the full data set (fall 2010–fall 2015) of both groups could be considered. Results of this comparison are presented in Figure 1. Of 590 honors students, 565 (95.8%) returned to ECU for the start of their second year. Only 486 (79.7%) of the 610 comparable non-honors students returned to ECU, yielding a difference of 16.1 percentage points.

Figure 2 presents a line graph of the second-year retention rates over time for honors versus comparable non-honors students for fall 2010–fall 2015 incoming first-year students. The graph highlights the gap between honors and non-honors students over time while also showing that the rates for the two groups generally follow the same pattern.

Some possible approaches to comparing the honors and non-honors groups, such as z-tests for two proportions or two-sample confidence intervals, require independent random samples. The honors group in the study included every honors student for the given time period. Since population data are available for honors students, second-year retention rates for the fall 2010–fall 2015 honors first-year classes are known; no uncertainty about these parameter values exists for this time frame. We calculated confidence intervals for second-year retention rates for each of the fall 2010–fall 2015 non-honors first-year classes using the data provided by institutional research staff and compared them to the population proportions for the honors students. (This process is similar to conducting one-sample tests using the non-honors data for the sample and treating the honors proportions as the null values, but without the limitations of the tests detailed in the Limitations section.) We

FIGURE 1. EKU SECOND-YEAR RETENTION FOR HONORS VS. COMPARABLE NON-HONORS STUDENTS

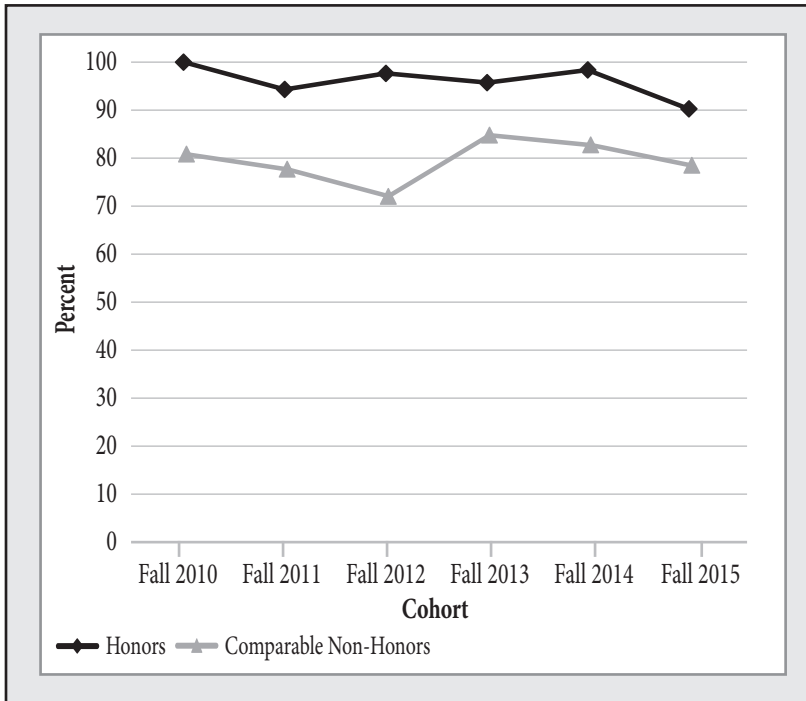


used a confidence level of 99.17 percent for each interval based on a Bonferroni correction ($1 - .05 \div 6 \approx .9917$). The Bonferroni correction accounts for the fact that multiple comparisons have been made (Weisstein n.d.). Only one of the six confidence intervals contains the corresponding honors retention rate, and that one (fall 2013) barely does, suggesting that non-honors retention rates differ from the honors retention rates for most, if not all, of the years studied. (Note that the Bonferroni correction produces conservatively wide confidence intervals. We summarize those results in Table 1.)

Honors vs. Comparable Non-Honors Graduation

We compared four- and five-year graduation rates between the honors and non-honors groups for the fall 2010–fall 2012 cohorts,

FIGURE 2. EKV SECOND-YEAR RETENTION RATES OVER TIME FOR HONORS VS. COMPARABLE NON-HONORS STUDENTS FOR FALL 2010–2015 INCOMING FIRST-YEAR STUDENTS



based on the availability of graduation data as previously discussed. We have presented the results of that comparison in Figure 3. Compared to the second-year retention data, more significant gaps are evident when comparing graduation rates. After four years, 72 percent of honors students (185 of 257) had earned an undergraduate degree from ECU. Only 46.9 percent of the comparable non-honors students (172 of 367) had graduated during that same time period, a difference of 25.1 percentage points. After five years, that gap had widened by almost ten percentage points. The honors group had a five-year graduation rate of 87.2 percent (224 of 257), while the non-honors group graduated 52.3 percent (192 of 367) during the same time period.

We also examined the four-year graduation rate for the cohorts beginning in fall 2010–fall 2013, and we present those results in Figure 4. Due to the time frame of data collection, we could examine only four-year graduation rates for the cohorts entering between fall 2010 and fall 2013; students in these cohorts had not had the full five years to graduate at the time of our data collection during the summer of 2017. After four years, 73.7 percent of honors students (260 of 353) had earned an undergraduate degree from ECU, compared to 45.5 percent of non-honors students (200 of 440). That represents a difference of 28.2 percentage points, approximately the

TABLE 1. COMPARISON OF ECU HONORS RETENTION RATES WITH CONFIDENCE INTERVALS FOR COMPARABLE NON-HONORS RETENTION RATES FOR FALL 2010–FALL 2015

| First-Year Class | Second-Year Retention Rate for Honors | Comparable Non-Honors Sample Size | Comparable Non-Honors Retention Count | 99.17% Confidence Interval ^a |
|------------------|---------------------------------------|-----------------------------------|---------------------------------------|---|
| Fall 2010 | 100.0% | 126 | 102 | (71.7%, 90.2%) |
| Fall 2011 | 93.4% | 136 | 106 | (68.6%, 87.3%) |
| Fall 2012 | 97.7% | 105 | 76 | (60.9%, 83.9%) |
| Fall 2013 | 95.8% | 73 | 62 | (73.9%, 96.0%) |
| Fall 2014 | 98.4% | 76 | 63 | (71.5%, 94.3%) |
| Fall 2015 | 90.4% | 94 | 74 | (67.6%, 89.9%) |

^a CI for the second-year retention rate for comparable ECU non-honors students (overall $\alpha = .05$). The confidence level of 99.17% is based on a Bonferroni correction ($1 - .05 \div 6 \approx .9917$).

same size as that witnessed for the four-year graduation rate in the fall 2010–fall 2012 group.

Again, since population data are available for honors students, five-year graduation rates for the fall 2010–fall 2012 honors first-year classes are known. Confidence intervals for five-year graduation rates for each of the fall 2010–fall 2012 non-honors first-year classes were computed using the data provided by institutional research staff. We used a confidence level of 98.33 percent for each interval based on a Bonferroni correction ($1 - .05 \div 3 \approx .9833$). None of the three confidence intervals contain the corresponding honors five-year graduation rate, suggesting that non-honors five-year graduation rates differ from the honors five-year graduation rates for the years in question. The results are summarized in Table 2.

FIGURE 3. EKV FOUR-YEAR AND FIVE-YEAR GRADUATION RATES FOR HONORS VS. COMPARABLE NON-HONORS STUDENTS FOR FALL 2010–FALL 2012 INCOMING FIRST-YEAR STUDENTS

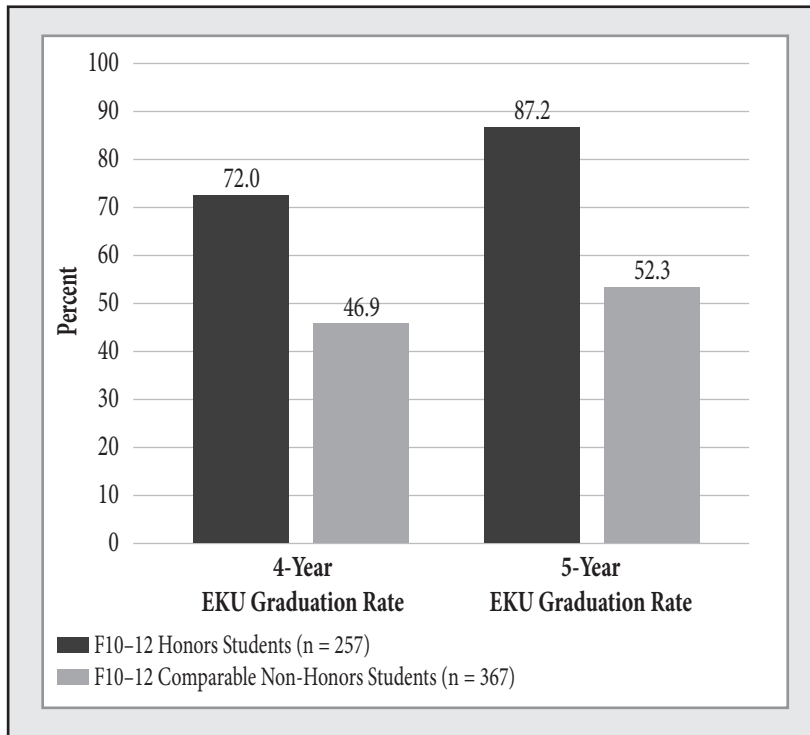


FIGURE 4. EKU FOUR-YEAR GRADUATION RATES FOR HONORS VS. COMPARABLE NON-HONORS STUDENTS FOR FALL 2010–FALL 2013 INCOMING FIRST-YEAR STUDENTS

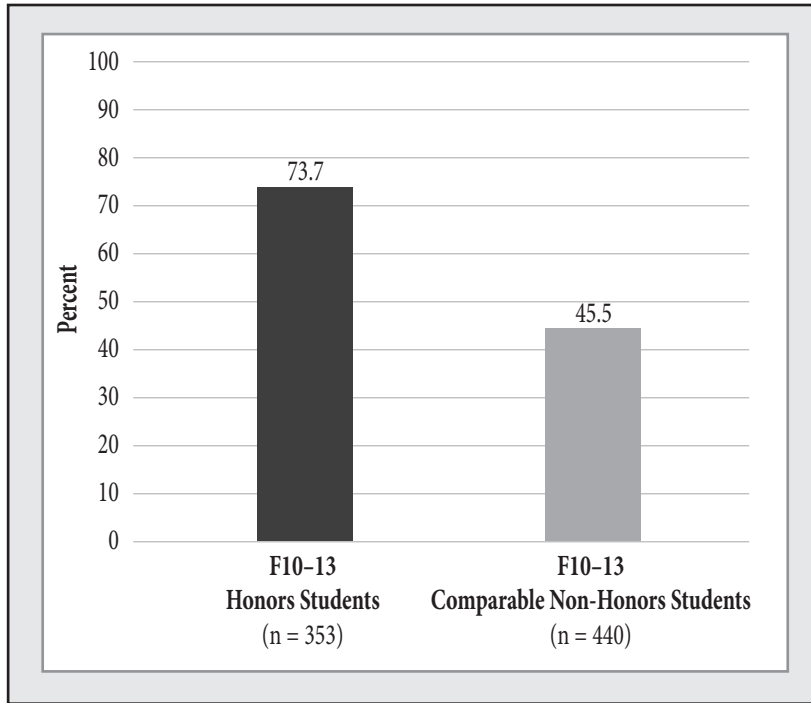


TABLE 2. COMPARISON OF EKU HONORS FIVE-YEAR GRADUATION RATES WITH CONFIDENCE INTERVALS FOR COMPARABLE NON-HONORS FIVE-YEAR GRADUATION RATES FOR FALL 2010–FALL 2012

| First-Year Class | Five-Year Graduation Rate for Honors Students | Non-Honors Sample Size | Non-Honors Five-Year Graduation Count | 98.33% Confidence Interval ^a |
|------------------|---|------------------------|---------------------------------------|---|
| Fall 2010 | 92.5% | 126 | 74 | (48.2%, 69.2%) |
| Fall 2011 | 80.0% | 136 | 68 | (39.7%, 60.3%) |
| Fall 2012 | 90.7% | 105 | 50 | (36.0%, 59.3%) |

^a CI for the five-year graduation rate for high-achieving EKU non-honors students (overall $\alpha = .05$). The confidence level of 98.33% is based on a Bonferroni correction ($1 - .05 \div 3 \approx .9833$).

Four-year graduation rates for the fall 2010–fall 2013 honors first-year classes are known. Confidence intervals for four-year graduation rates for each of the fall 2010–fall 2013 non-honors first-year classes were computed based on the data provided by institutional research staff. We used a confidence level of 98.75 percent for each interval based on a Bonferroni correction ($1 - .05 \div 4 = .9875$). None of the four confidence intervals contain the corresponding honors four-year graduation rate, suggesting that non-honors four-year graduation rates differ from the honors four-year graduation rates for the years included here. The results are summarized in Table 3.

Honors Students: Highly Involved vs. Less Involved

When comparing highly involved honors students to less involved honors students, we used only data from fall 2010 to fall 2013, based on the previously discussed limitation that students in the fall 2014 and fall 2015 cohorts may still participate in the activities used to measure involvement. Of 353 total students within these four groups, 113 students make up the highly involved honors student group. We compared the highly involved and less involved honors students on the following measures: second-year retention in the honors program, second-year retention at ECU, graduating

TABLE 3. COMPARISON OF ECU HONORS FOUR-YEAR GRADUATION RATES WITH CONFIDENCE INTERVALS FOR COMPARABLE NON-HONORS FOUR-YEAR GRADUATION RATES FOR FALL 2010–FALL 2013

| First-Year Class | Four-Year Graduation Rate for Honors Students | Non-Honors Sample Size | Non-Honors Four-Year Graduation Count | 98.75% Confidence Interval ^a |
|------------------|---|------------------------|---------------------------------------|---|
| Fall 2010 | 78.8% | 126 | 68 | (42.9%, 65.1%) |
| Fall 2011 | 63.3% | 136 | 61 | (34.2%, 55.5%) |
| Fall 2012 | 75.6% | 105 | 43 | (29.0%, 52.9%) |
| Fall 2013 | 78.1% | 73 | 28 | (24.1%, 52.6%) |

^a CI for four-year graduation rate for high-achieving ECU non-honors students (overall $\alpha = .05$). The confidence level of 98.75% is based on a Bonferroni correction ($1 - .05 \div 4 = .9875$).

as an honors scholar, and graduating from ECU within four years. We present these results in Figure 5.

Participation in just one additional activity within the honors program appears to make a measured difference in most of these categories. The category with the smallest gap between highly involved honors students and less involved honors students is second-year retention at ECU, a gap of only 5 percentage points. It is worth noting, however, that 100 percent of highly involved honors students were retained at ECU at the start of their second year. This same cohort of highly involved honors students were also retained within the honors program for the second year at 100 percent, compared to 85.8 percent of less involved honors students (206 of 240).

Wider gaps are observed in the four-year honors scholar graduation result and the four-year graduation rate from ECU. Highly involved students graduated as ECU Honors Scholars within four years at a rate of 86.7 percent (92 of 113). That number drops 38.4 percentage points for less involved honors students; they graduated as honors scholars at a rate of 48.3 percent (116 of 240). The gap in graduation rates narrows to 23.1 percentage points for the regular four-year graduation rate. Highly involved honors students earned their undergraduate degree in four years at a rate of 89.4 percent (101 of 113), while less involved students graduated in four years at a rate of 66.3 percent (159 of 240).

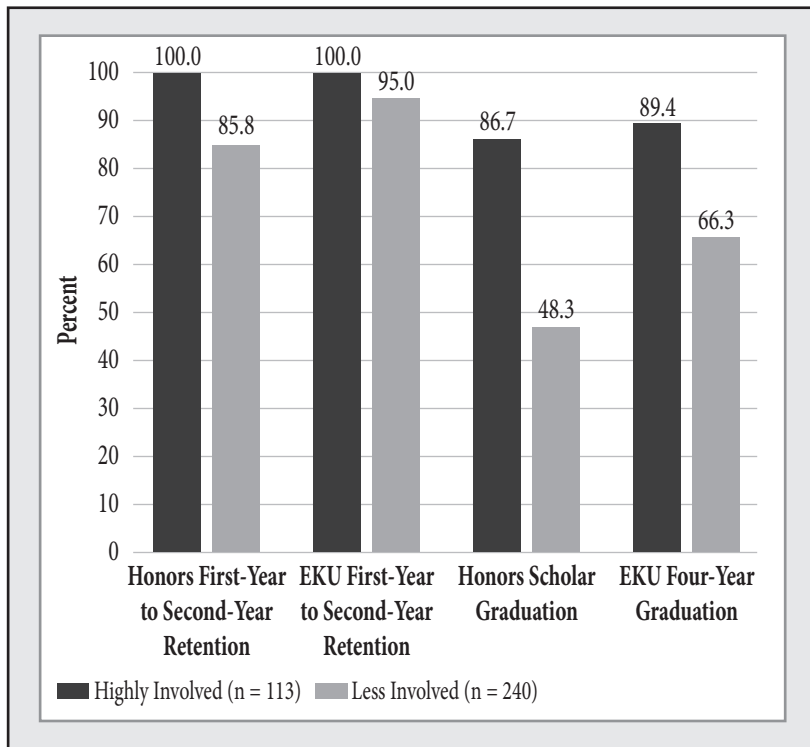
In order to consider five-year graduation rates, we removed the fall 2013 cohort from the analysis and present those results in Figure 6. A total of 257 students make up the fall 2010–fall 2012 cohorts, with 83 highly involved honors students and 174 less involved honors students. Again, highly involved honors students had a 100 percent second-year retention rate, both within the honors program and at ECU, compared to less involved students at 83.9 percent (146 of 174) and 95.4 percent (166 of 174), respectively. While the gap between highly involved and less involved honors students earning their undergraduate degree in five years is the smallest of the three graduation measures at 13.6 percentage points, we witness significant gaps once again in graduating from ECU in four years (23.6 percentage points) as well as graduating as an honors scholar (35.9 percentage points). (The honors scholar

graduation metric is for those graduating in five years total; thus no differentiation is made between those who graduated as honors scholars in four years versus five years.)

DISCUSSION

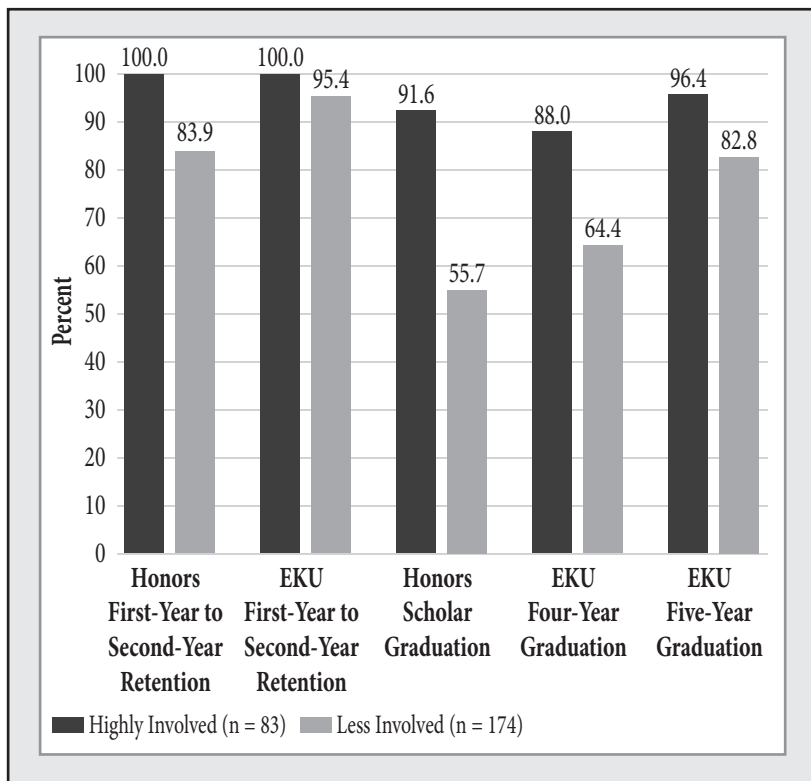
Analyzing these groups leads to some key points of discussion on the value added of participating in the EKU Honors Program, as well as involvement in some of the high-impact practices the program provides. Typically, honors program participants lead the overall university population in retention and graduation rates. This fact may be partially attributed to these students' inputs, that is, being more academically prepared and having a mindset that

FIGURE 5. RETENTION AND GRADUATION RATES FOR HIGHLY INVOLVED VS. LESS INVOLVED HONORS STUDENTS FOR FALL 2010–FALL 2013 INCOMING FIRST-YEAR STUDENTS



predisposes them to academic success. The goal of this study was to explore whether a significant difference in these rates exists between honors program students and a similarly academically prepared sample of non-honors students, thus controlling for the widely recognized inputs that likely differentiate honors students at the point of matriculation in order to illustrate the value added of the honors program experience. The data collected here show honors students outperforming the comparable non-honors group in measures of second-year retention and four- and five-year graduation, regardless of pre-college academic preparation. The evidence suggests that the environment of the EKU Honors Program does have a positive effect on retention and graduation rates. The impact

FIGURE 6. RETENTION AND GRADUATION RATES FOR HIGHLY INVOLVED VS. LESS INVOLVED HONORS STUDENTS FOR FALL 2010–FALL 2012 INCOMING FIRST-YEAR STUDENTS



on a university's retention and graduation rates would be profound if more students were exposed to the honors program environment. In an era of public scrutiny and with the proliferation of performance-based funding (distribution of funding based on metrics such as retention and graduation rates, among others), making the case to high-level university administration that honors education positively impacts these metrics for its students is extremely beneficial for honors deans and directors.

Additionally, a stark difference in simply participating exists between the EKU Honors Program and having high levels of involvement within the program. Students who participated in just one of the activities used to measure level of involvement had much higher rates of graduating as honors scholars and graduating from the university in four years than their less involved counterparts. This difference between being highly involved and less involved in honors activities suggests that providing meaningful opportunities for involvement creates an environment that positively affects the desired outcome of increasing graduation rates.

LIMITATIONS

A few limitations deserve some attention when considering this study. First, it may be the case that students who self-select into the honors program and choose to participate may be especially predisposed to the student success outcomes measured here. This predisposition may account for some of the gaps between the honors group and the comparable non-honors group; while the groups have similar pre-college academic profiles, this study does not measure the students' attitudes toward education, the honors program, or the college as a whole.

We also recognize that many of those students who fall into the category of less involved honors students are highly involved in other aspects of university life. The EKU Honors Program has had a long tradition of students who take leadership positions in a wide variety of campus activities, including student government, fraternity and sorority life, and athletics. That a student appears in the category of less involved within the honors context does not

imply that the student is not otherwise invested in campus life. Moreover, the majority of students do not become involved in one of the significant activities measured in this study until after their first year. The second-year retention rate of those highly involved honors students, compared to that of the less involved students, is less meaningful when we consider this fact.

Additionally, the extremely high rates that honors students have for some of the outcomes measured here present some challenges in data analysis. Since the honors data here can be considered to be population data, honors rates could be used as null values in tests of hypotheses about non-honors rates. In the case, however, of an honors rate of 100 percent (e.g., the second-year retention rate for the honors first-year class of 2010), a standard test of significance is not possible, and for rates near 100 percent, large samples would be needed. Hence, we opted to use confidence intervals to estimate rates for high-achieving non-honors students and compare them to the population rates for the honors students. It is also worth noting that the population of high-achieving non-honors students is not well defined since the sample came from a mixture of students who decided not to enter the honors program, students who were enrolled in English 105, and students who had high ACT scores and high school GPAs; thus, it is not clear whether finite population correction factors might be needed since the population size is ambiguous.

Finally, we recognize that the ECU Honors Program is in a unique position to send a large number of students each year to regional and national conferences because of its \$1.8 million endowment designated for these purposes. Other measures of involvement or of high-impact practices that are distinctive to other programs may be better indicators of the value added of honors education at those institutions.

CONCLUSION

This study adds to the research on the value added of honors education by utilizing some of the core principles of Astin's I-E-O model for longitudinal study of student success in higher education.

Looking quantitatively at the differences in outcomes between honors and non-honors students, while controlling as much as possible for the inputs of these students on the basis of pre-college academic preparedness, the study shows a demonstrable difference in first-year to second-year retention and four- and five-year graduation rates between those students who participated in the ECU Honors Program and comparable students who did not participate in honors. In addition, this study examines the differences in outcomes of those honors students who participated in a set of high-impact practices available in the ECU Honors Program. Being highly involved within the honors program correlates strongly to higher outcomes in persistence to the second year of college and four- and five-year graduation rates. In short, the environment of the ECU Honors Program positively impacts student outcomes and provides a significant added value not only for those students but also for the university as a whole. By creating an environment that leads to higher second-year retention rates and graduation rates for its students, honors education can raise these rates for institutions as a whole, making allocation of resources to honors education a significant and impactful strategic option for a university.

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