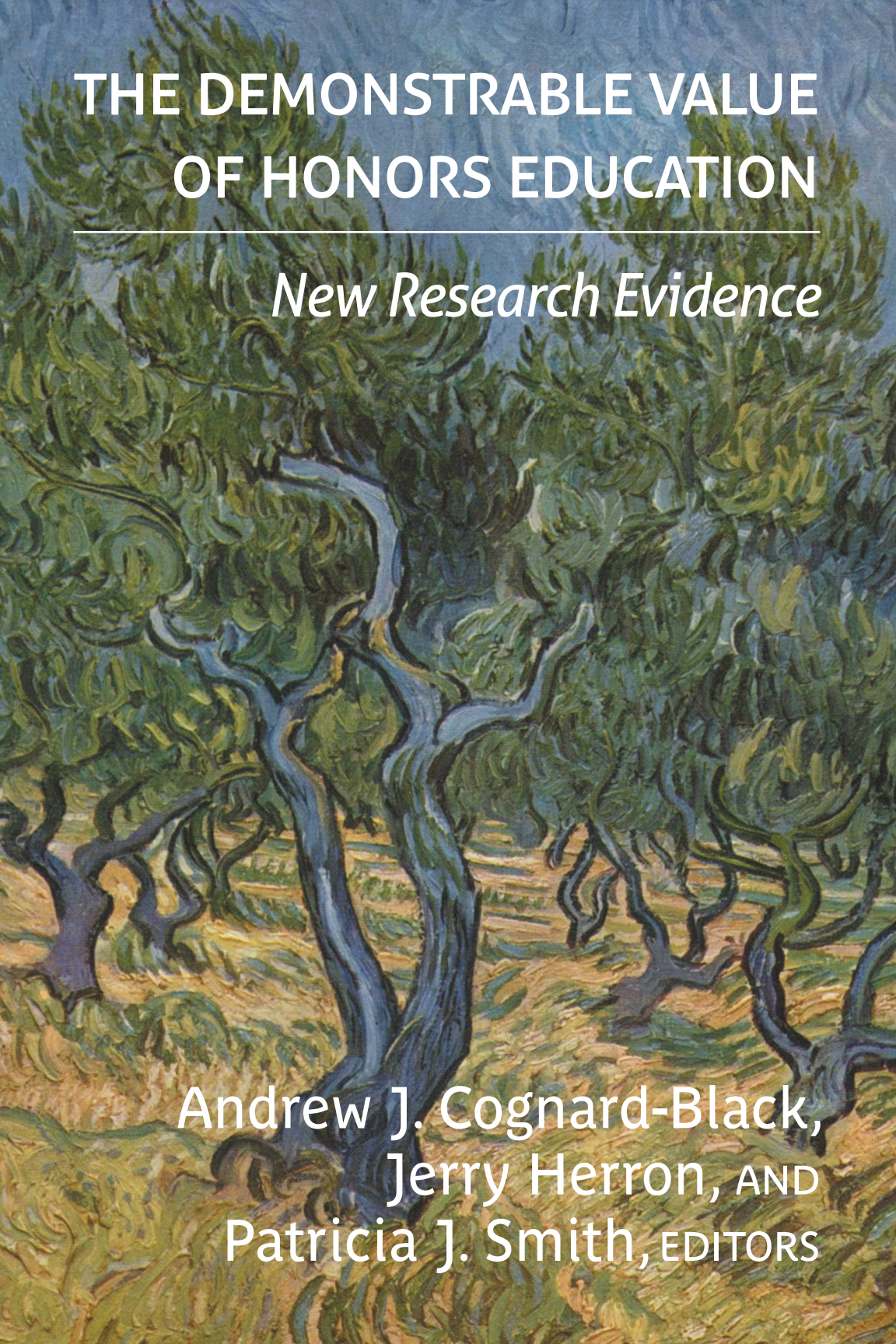
THE DEMONSTRABLE VALUE OF HONORS EDUCATION

New Research Evidence



Andrew J. Cognard-Black,
Jerry Herron, AND
Patricia J. Smith, EDITORS

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Edited by Andrew J. Cognard-Black, Jerry Herron, and Patricia J. Smith

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Andrew J. Cognard-Black
Jerry Herron
Patricia J. Smith

THE DEMONSTRABLE VALUE OF HONORS EDUCATION

NEW RESEARCH EVIDENCE

Introduction: The Demonstrable Value of Honors Education

Andrew J. Cognard-Black
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In May of 2016, a small cadre of scholars was called to the campus of Wayne State University in Detroit, Michigan, for the Honors Education Research Colloquium, a two-day meeting focusing on the future direction of research in honors education. The participants were assembled by Jerry Herron, who at the time was president of the National Collegiate Honors Council (NCHC), close on the heels of a decision by the NCHC Board of Directors in June of the previous year to make research—along with professional development and advocacy—one of three strategic priorities.

After a day of presentations, in turn, by each of the participants, the colloquium discussion turned on the second day to an enumeration of ways in which the goal of encouraging honors research might best be effected. That enumeration included such topics as bridging the gap between those scholars doing related educational research inside and outside of honors and the establishment of an infrastructure to facilitate data collection and other collaborative research across multiple NCHC member institutions. One of the

concepts that emerged most forcefully from those discussions was vocal consensus about the need for more, and more robust, research evidence addressing the question of whether honors education adds value—for a society that helps to support the educational enterprise, for faculty and others who work to provide honors programming, for the institutions that house honors programs and colleges, and, especially, for the students who participate in such programs.

Almost 100 years into the honors education experiment set in motion by Frank Aydelotte, there has been, of course, a great deal of research and writing about honors. In many ways, however, honors programs have for decades hummed along peacefully and without much notice from educational researchers or the watchful eyes of accreditors, and the notion that honors provides a better educational experience for high-ability and otherwise talented students has persisted largely as an unquestioned assumption.

But that situation is changing. In the past few decades, as modernity unceasingly fetishizes anything presented numerically—especially if it comes in the form of a ranking—and as "assessment" has transformed from a buzzword into a bureaucratic juggernaut, more and more honors directors have been pulled into an inexorable vortex that ends each summer with an annual report filled with numbers and attending stories of honors student successes. Indeed, many honors administrators now routinely present their student accomplishments, rates of graduation, and other student successes compared to those in the general student body as evidence of honors program success. Many honors programs can show that their honors students graduate at higher rates than non-honors students, do so faster, graduate with higher GPAs, are more likely to go on to graduate and professional school, and win prestigious national fellowships at higher rates.

While the data points and success stories in annual reports may have their place on campus, from a research perspective these approaches often have serious limitations. The problem is that we want to know about the honors experience, but we often are measuring student characteristics, and doing so selectively. Most honors students, however, are starting at a different place than those in the general student body because the admissions processes for honors

at most institutions are designed to maximize the probability that unusually smart, talented, and motivated students enter those programs. Thus, the evidence most often used to demonstrate the impact of honors programs is limited because it usually does not account for the differences that exist between honors and non-honors students at the moment of matriculation or point of entry into honors programs. That reality makes it difficult to establish a causal connection between the honors experience and student change—we often do not have a really good handle on where the students started in order to evaluate how much they have grown.

The problem at hand is one that has been of concern at least as far back as the very moment when NCHC emerged from the ashes of what had been, from 1957–1965, the Inter-University Committee on the Superior Student (ICSS). The same year that NCHC was founded, Joseph W. Cohen (1966) published his monograph titled *The Superior Student in American Higher Education* chronicling the history and issues surrounding the efforts of the ICSS to expand honors education in the United States, and in the final pages Cohen turns his attention to honors program evaluation. While experiments employing random assignment of subjects to experimental and control groups are something of a gold-standard in explanatory research, Cohen notes that "no experimental attempts to determine objectively how attainment and achievements of honors participants compared to those of non-honors students are recorded" (Cohen 1966:254). Indeed, while the design of such an experiment is not difficult to imagine, few would find acceptable any attempts at experimentation where some otherwise eligible students were denied entry into honors in the interests of demonstrating the unique effects of the program on student success.

Yet there are other ways that researchers can capitalize on naturally occurring variation among honors and non-honors students to isolate the unique effects of honors program participation on student success and other meaningful outcomes such as civic mindedness, intellectual humility, or any variety of other outcomes that we might like for our students. Use of multivariate statistics and thoughtful research design that measures and statistically controls for relevant characteristics has become the bread and butter of research in the

social sciences, but such methods have been applied relatively rarely in research on honors education.

In response to the outcry at the Detroit research colloquium, in early 2017 we announced a call for proposals for new research exploring the value added of honors programs. That announcement can be found in the Appendix to this volume, and the collection herein is the result of that call for new research on the demonstrable value of honors education.

While many of the chapters rely on analytic methods that are more widely used in some fields than in others, authors have endeavored to include definitions and more explanation of statistical terms than one might typically find in a disciplinary journal where readers and writers share a common analytic frame and vocabulary. The collection begins with "Honors Value Added: Where We Came From, and What We Need to Know Next" by Hallie E. Savage, who provides an overview of the historical development of honors programs in the United States. In "History and Current Practices of Assessment to Demonstrate Value Added," Patricia J. Smith then explores how the pursuit of evidence about value added in honors programs can be used within the program review process to inform change, and she points to the importance of collecting both quantitative and qualitative data in research investigating the benefits of honors education.

In "Proving the Value of Honors Education: The Right Data and the Right Messaging," Bette L. Bottoms and Stacie L. McCloud then show how good data combined with simple yet compelling data summaries can be used on campus to illustrate the value that honors programs add for the larger institutions that house them, as well as for honors students in terms of classroom success and college completion. Bottoms and McCloud explain how other honors program directors can engage in local collaborations to bring similar kinds of evidence to bear on their own campuses even when they may not have training in sophisticated statistical and quantitative research methods. In the process, they provide a template that readers from fields outside of the social sciences may find more accessible, and in so doing they provide a comfortable launchpad that propels the volume forward to subsequent chapters.

The remainder of the collection features a variety of formal research contributions that make use of rigorous multivariate and other research methods designed to isolate the unique effects of honors program participation on student success, and thus to bolster the accumulation of evidence on the question of the value added from honors education. Dulce Diaz, Susan P. Farruggia, Meredith E. Wellman, and Bette L. Bottoms anchor the assemblage in a chapter that boldly claims, "Honors Education Has a Positive Effect on College Student Success." Using data on over 20,000 students collected during the period 2006–2012 at a large public university, they found significant benefits to student success from participating in the university honors college. After controlling for various pre-matriculation variables, participation in the honors program was positively associated with first-term GPA, first-year credits earned, second-year retention, and graduation rates. Notably, they also found that those associations were stronger for underrepresented minority students on some success indicators, suggesting that honors education may help to address race and ethnicity achievement gaps that we witness elsewhere in higher education.

Katie Patton, David Coleman, and Lisa W. Kay's "High-Impact Honors Practices" details how they utilized Astin's "inputs-environment-outputs" (I-E-O) model to examine how the environment of the Eastern Kentucky University Honors Program affects student outcomes. Using data from almost 600 honors students and a comparable group of non-honors students with similar academic preparation, they found that honors students had higher retention and graduation rates than the comparable non-honors students. Moreover, they found that there were higher retention and graduation rates among those honors students who were more highly involved in the high-impact practices that are an important feature of the honors program.

In "GPA as a Product, Not a Measure, of Success in Honors," Lorelle A. Meadows, Maura Hollister, Mary Raber, and Laura Kasson Fiss describe the unique features of the Pavlis Honors College at Michigan Technical University, where any student is free to join honors regardless of GPA. Unlike much of the other research that

focuses on outcomes such as retention and graduation rates, Meadows et al. used data from initial and final written reflections by 26 students in their first honors seminar to evaluate the development of "self-authorship," fostering students' authentic internal voices, as the outcome of interest. They found that the unique approach of their courses was associated with higher levels of self-authorship, and they report: "Self-authorship development has been shown to produce graduates who are better prepared to manage adversity and change, make meaningful decisions, benefit from their educational experiences, and learn deeply throughout their adult lives" (p. 143).

Art L. Spisak, Robert F. Kirby, and Emily M. Johnson present evidence of value added from a slightly different vantage in "Adding Value through Honors at the University of Iowa." Using data from over 3,000 students at the University of Iowa, they compared honors students who lived in honors housing and/or participated in an honors pre-semester credit-bearing class with similar honors peers who did not opt for those experiences. Results indicate that students who elected to participate in a pre-semester honors class and live in honors housing were more engaged in the honors program and, moreover, had greater academic success as measured by outcomes such as cumulative GPA at the end of the first year and completion of honors requirements. The comparison—not of honors with non-honors but of students with varying levels of engagement within the honors program—suggests that it may be exposure to specific features of an honors program that adds value to the educational experience.

Robert D. Brown, Jonathan Winburn, and Douglass Sullivan-González then discuss evidence of value added both for individual honors students and for the institution in "The Value Added of Honors Programs in Recruitment, Retention, and Student Success." They used survey data from over 500 honors students to evaluate the ways in which the honors college adds value at the institutional level to the University of Mississippi. They found that the enhanced academic environment resulted in a significant recruitment impact for the university that also helps to mitigate against brain drain whereby the best students leave the state to pursue schooling elsewhere. In a

supplemental analysis, they used a matched pairs approach for over 1,500 honors students and comparable non-honors students and found further evidence that honors programs contribute to higher student GPAs and greater retention in each subsequent year of the students' college careers.

Jane B. Honeycutt contributes an important aspect to the collection by exploring the value added of honors at two-year institutions in "Community College Honors Benefits." She compared outcomes for 95 honors program participants at Northeast State Community College in Tennessee with those for 357 academically matched peers who did not participate in honors. She used a propensity score matching process to control for confounding variables such as high school GPA, ACT score, parental income, and several other important background characteristics. Honeycutt found that honors program participants, compared to non-honors students, earned significantly higher grades in their English Composition II course, earned significantly higher GPAs, and were significantly more likely to graduate.

The final research article in this collection comes from George Smeaton and Margaret Walsh at Keene State College. Their essay, "Contributions of Small Honors Programs," presents data from approximately 100 honors students and a comparable group of students who received merit-based scholarships but did not participate in honors. Like other authors in this collection, they found that honors students had higher retention rates and greater involvement in high-impact educational practices, but they also present qualitative data that suggest that specific program features, such as an honors living-learning community and an emphasis on experiential learning, contributed to those improved outcomes.

In the final essay, co-editor Jerry Herron and his collaborator D. Carl Freeman ask, "What Next?" They provide a synthesis of the cumulative contributions of the collection as well as offering suggestions for future research directions.

We believe that together the contributions in this collection provide important answers and compelling evidence that honors programming does contribute something above and beyond what honors students themselves bring to the educational experience. This

research also presents a useful cross section of research methods that we hope will inspire future research efforts in this area of inquiry. Moreover, we hope that the cover image from Vincent van Gogh's *Olive Orchard* will provide a visual reminder of the power and beauty that are possible when conscientious stewards provide the right conditions for growth.

The results presented in this volume are a forceful answer to the question of whether honors adds value, and the evidence indicates that the answer to the question is yes. Using a variety of different methods and exploring a variety of different outcomes across a diversity of institutions and institution types, honors programming adds demonstrable value for the students who participate. While it is true that those students tend to start college in a stronger position in terms of academic preparation—as indicated by factors such as college entrance tests and high school GPA—meaningful evidence demonstrates that honors programs propel those students further than they would have gone without those programs. Yet research evidence is rarely unambiguous, and results are often qualified by the parameters of sampling designs and other methodological choices. Readers must discern for themselves just how demonstrable the evidence is and what directions future research should take, and so I encourage readers to investigate for themselves in the pages that follow.

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Honors Value Added: Where We Came From, and What We Need to Know Next

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THE VALUE ADDED IMPERATIVE

The pressure is on, and growing greater when it comes to defining, disseminating, and defending the value of higher education generally and the reasons for funding it (Harnisch 2011). Complaints abound regarding the rising costs of higher education, and many legislators and the public are demanding accountability. Funding cuts are forcing many colleges and universities to prioritize and to evaluate what merits support and what does not. As a part of a large array of undergraduate programs, honors programs and honors colleges face increasingly greater pressure to justify their existence.

That said, honors programs and colleges are in a good position to make a case for the value that honors adds to institutional outcomes. Honors education is known nationally and internationally

for leadership in high-quality undergraduate programs. Honors faculty enjoy the opportunity to create unique and innovative learning environments, with academically talented undergraduate students as the immediate beneficiaries. Institutions benefit from recruitment of ambitious, motivated students who typically have higher retention and graduation rates when compared to those in the traditional student population. Yet despite these obvious institutional benefits, questions persist regarding the value that honors adds and how precisely that value is to be measured.

The term "value added" has emerged in higher education in reference to models that can be used to evaluate, monitor, and improve an institution (Kim and Lalancette 2013). Institutional outcomes have mainly focused on student performance measures such as scores on standardized tests or the percentage of students progressing to higher levels of education. Student performance can also be measured through group metrics such as retention and graduation rates. Our outcomes-based culture is driven by the need for assessments of value added that capture demonstrably the impact institutions have on improving student performance. An institution's achievement on performance indicators may be significant for funding purposes—e.g., state appropriations—so that such measures become crucial to a school's fiscal health.

The value of honors programs and colleges and, consequently, the contribution of honors to the institution are enthusiastically articulated by honors deans, directors, and college presidents. In 2015 the *Journal of the National Collegiate Honors Council* included a forum titled "The Value of Honors," in which a cadre of higher education leaders described the benefits of honors programming and the contribution of such programming to institutions of higher education. As a president with a long tenure in higher education, E. Gordon Gee provided this view:

> I have been around the block for the last thirty-plus years serving as president of five major institutions in the United States, and I can affirm that the increased value placed on an honors education is enriching entire universities and how they operate. (Gee 2015:177)

A host of other leaders affirmed Gee's point. The contributions of honors to the university-wide curriculum is characterized as a significant benefit, as Jake B. Schrum, President of Emory & Henry College, and Joe Lane, Director of the Honors Program, affirmed:

> Our honors program has made it possible for us to raise the level of discussion in classes across the curriculum and has revealed opportunities for investing all of our students in projects that will widen their horizons and allow them to contribute to positive social change. (Schrum and Lane 2015:39)

These statements testify to the value honors contributes to undergraduate institutions. High-quality programs are those defined by the creation of communities of students, faculty, and administrators investing considerable time and effort building learning communities. Honors education insists on the construction and sustenance of the highest quality participation in teaching and learning. A useful perspective on the value honors adds to the institution can be gained from a review of the growth of honors programs and colleges within undergraduate institutions.

A BRIEF HISTORY OF THE HONORS TRAJECTORY WITHIN INSTITUTIONS

For over 200 years, honors programs and colleges have experienced phenomenal growth within undergraduate education. The earliest reports of the approach that has come to be defined as honors were of the "pass-honors" reconstruction of the grading structure at Oxford University in 1804. This grading process was intended to expand university-wide curricular focus and support independent student research (Standley 1993). In the early 1920s, the formal programmatic establishment of honors in the American university infrastructure occurred when Swarthmore College replaced traditional coursework with honors courses. The first formalized honors courses replaced upper-division course offerings and revealed early emphasis on writing, critical thinking, and capstone experiences (Guzy 2003).

In 1924, Joseph W. Cohen, a philosopher, arrived at the University of Colorado to begin his tenure. Cohen reported later that he was angered "by the inertia I witnessed before the deep problems of quality in a state institution confronted by numbers, by routine, by the recalcitrance of legislatures" (Cohen 1966:viii). Cohen observed that students with high grades lacked knowledge and preparation, and he believed that university faculty should be empowered to produce intellectuals. Further, he was convinced that public education could equal the best offered at elite institutions, that these schools did not have a monopoly of faculty or student intellect. Based on these philosophical underpinnings, Cohen established an honors program that served as a model for others that followed.

Formal honors program development in American higher education accelerated following World War II. Programs were established with the intent of raising the academic standards for undergraduate education. A desire for rigorous standards for all education resulted from national competition for global leadership, i.e., Sputniks 1 and 2, as well as large increases in new student enrollment (Andrews 2011). Andrews provides an enriching description of how these societal forces influenced the formalization of honors and improving educational quality. The oldest view of program quality is one that suggests that coherent and rigorous curriculum requirements are at the core of high-quality programs. Administrators and faculty in honors leadership united in their dedication to high-quality programs and formed the National Collegiate Honors Council (NCHC).

The first NCHC conference was held at the University of Kansas on October 22–24, 1966, with a program structured around five invited presenters and a student panel. Of the five papers, two presentations were on the motivation of honors students in colloquia and courses. Walter Weir (1966), then director of the honors program at the University of Colorado, described honors students in this way:

> our honors students come to us highly motivated to succeed, to climb the ladder of affluence and success. They tend to have more intellectual curiosity than most students,

> to be quicker and more industrious; but their most fundamental trait is their ability to get good grades. (p. 45)

This description was supported by Dean James Olsen (1966) from Kent State University, who focused on the "intrinsic" and "extrinsic" needs of honors students. His research was intended to assess the worth and effectiveness of honors courses as well as other features of the Kent State Honors College. Over a span of six years, honors students were asked to describe an ideal honors course in comparison to existing courses within their honors college. The assumption was made that students with attributes defined by admissions criteria (intrinsic qualities inherent in the student performance) would achieve success in a prescribed learning environment (as defined by extrinsic qualities within the learning context). Olsen (1966) concluded the following from his research:

> if honors students are to be motivated and to be satisfied in honors courses, very careful attention must be given to the instructors and the methods of instruction employed . . . [;] what is necessary is to recognize that the students are not completely self-generative and that the primary consideration is the instructor and his methods. (p. 56)

Considered collectively, these early studies suggest that honors programs and colleges may predict outcomes (e.g., academic performance, program completion rate) based on intrinsic criteria or performance measures; however, an essential characteristic not easily measured is motivation and persistence in problem solving. Honors learning environments were, and continue to be, developed to facilitate, motivate, and nurture a drive for academic challenge.

In 1967, the National Collegiate Honors Council Annual Conference was jointly hosted by Catholic University, Georgetown University, Howard University, the University of Maryland, and the U.S. Office of Education in Washington, DC. With the proliferation in honors programs and colleges, the honors conference agenda increased its focus on honors/non-honors comparisons. One group of research presentations at the 1967 meeting categorized gifted

superior performance as a "domain" in areas of science, technology, engineering, and mathematics. Vernon Williams (1967) presented a pilot study at the University of Nebraska that compared honors seniors with high-ability non-honors seniors in agriculture. This pilot study dealt with student-faculty engagement, appreciation of the scientific and professional nature of agriculture, student involvement in academic endeavors, and rational thinking about occupational development. Williams concluded that the honors students in agriculture had more interaction with faculty, felt more positively about their interaction, and were more involved with academic work when compared with the high-ability students who did not participate in the honors program. These early honors educators acknowledged that students and faculty work collaboratively to create the honors learning community.

Over the next several decades, honors education emphasized innovative curricular development undergirded by critical thinking and active engagement in community-based learning approaches such as City-as-Text™ (Long 2015). The institutional benefit broadened, and honors came to be viewed as a laboratory that influenced the traditional curricula and elevated the rigor of the undergraduate experience across campus. Furthermore, student performance outcomes such as grade point averages, test performance, and a proclivity for academic challenge positively impacted the institutional profiles and the academic atmosphere of the institution generally. The proliferation of honors programs and colleges was followed by a slower rate of growth (Smith and Scott 2016). This trend in the 1970s and 1980s is most likely correlated with the end of expansion in higher education and severe budget restrictions.

Schools continued to develop honors programs, and some were transformed into honors colleges. Program quality—how to enhance it and how to evaluate it—became an important priority for honors educators. As forces external to higher education pressed for accountability, many institutions began to look more critically at their programs to decide which should receive continued funding. In 2005, the editor of the *Journal of the National Collegiate Honors Council* accepted the challenge to elucidate the definition

of honors, and the journal invited manuscripts for a special forum dedicated to this pivotal question: "What is Honors?":

> While it is hard to find any single characteristic that distinguishes honors from non-honors students, teachers, or courses, and while honors programs/colleges across the country are far more different from each other than are, for instance, English departments or service learning programs, we do share one trait with passion and, I daresay, universal agreement: our belief in the vitality and necessity of outstanding undergraduate education. (Long 2005:9)

In other words, honors educators are characterized by a drive to challenge students beyond the traditional requirements, regardless of the discipline. Honors educators continued to evaluate commonalities and what was frequently termed "academic excellence." In pursuit of this goal, the NCHC Board of Directors eventually approved an official definition of honors:

> Honors education is characterized by in-class and extracurricular activities that are measurably broader, deeper, or more complex than comparable learning experiences typically found at institutions of higher education. (NCHC 2013)

Historically, honors communities are the product of faculty and administrators actively designing and implementing tangible program requirements that substantially enhance the quality of student learning. Considered from a university-wide perspective, honors plays an institutional leadership role for curricular development and pedagogical approaches that influence high-quality learning outcomes.

THE INHERENT VALUE OF STUDENT ENGAGEMENT

Active student engagement is a hallmark of high-quality programs (Pascarella and Terenzini 2005). Research has documented that student learning and development are enhanced when students become actively involved in out-of-class activities with peers and

faculty mentors (Kuh 1993; Kuh, Schuh, and Whitt 1991). From its inception, active student engagement in forums and presentations was recognized as a core value of NCHC conferences. Diverse and engaged students remain vital to the development and sustenance of honors programs and their engagement across campus.

Given the role of honors education in nurturing student success and its positive contribution to institutional performance measures, further research is needed to explore student engagement both quantitatively and qualitatively. Generally, research has sought to determine intrinsic variables (i.e., student characteristics) and their role in predicting academic success. These research designs are complicated by student diversity across different types of institutions and involvement in a wide variety of programmatic requirements. It is equally complicated to design studies that describe the inherent passion or propensity for academic challenge.

Conceptualizations of honors students emphasize the role of drive or persistence for academic challenge. That is, students of similar abilities can be characterized by their persistence in performing a task and/or the drive to achieve it. Literature in elementary and secondary gifted education, for example, underscores the important role of motivation in academic performance. Renzulli (1986) investigated task commitment as a central component of giftedness along with above-average ability and creativity. Terman and Oden (1959) noted that the most successful of their subjects could be distinguished from less successful subjects of equal ability by their task persistence. Therefore, measures of motivation and task persistence may be revealing for undergraduate honors education. That is, graduates of honors programs are often distinguished by their acceptance of challenge and drive to achieve beyond the minimal academic requirements. Clinkenbeard (1996), for example, cited studies that compared subgroups of the gifted on motivation type or style. Students with a high proclivity for academic success when compared to peers with average motivation have been studied longitudinally. Students who are highly motivated may perform differently, in distinctive ways, from those who lack motivation but who are similarly identified as innately intelligent. These investigations, then, would

seem to be applicable to undergraduate honors education; that is, results would describe motivational processes that affect student performance outcomes. Qualitatively, honors students infuse academic excellence into university-wide classrooms by demonstrating a passion for challenge, curiosity, and diligence.

HONORS AS ADDED VALUE TO INSTITUTIONAL OUTCOMES

Investigations have been designed to describe the value-added impact of honors by comparing honors with non-honors student outcomes. Cosgrove (2004) studied the academic performance, retention, and degree-completion rates of three groups of students: those who completed the honors program, students who participated in the honors program but did not complete the program, and students who qualified for honors but were not enrolled in honors. The student data were gathered across institutions in the Pennsylvania State System of Higher Education. The study controlled for the effects of student, institutional, and honors program characteristics. To examine the retention and degree completion rates, the research was gathered longitudinally over a five-year period. Results of this study revealed that honors program completers had the highest academic performance and graduation rates and the shortest time to degree compared with non-honors peers, including those partially exposed to honors. Support from other inter-institutional investigations is needed to describe the value of honors for diverse types of institutions and for a range of qualitative variables such as motivation and variation in characteristics such as gender, race, and other forms of diversity.

Studies were also designed to explore prediction of honors program completion. Evidence is building that high school grade point average (GPA) is the most significant predictor of honors program completion (McKay 2009; Savage, Raehsler, and Fiedor 2014). Grade point average appears, then, to be an important factor for admissions standards. As an institutional performance indicator, program completion rate makes a significant contribution to quantitative performance indicators tied to institutional success such as retention and graduation rates.

Other research has examined the impact of honors over the course of program participation. Hébert and McBee (2007) studied the qualitative enrichment of honors education over an entire undergraduate program of study. The results identified key social and intellectual bonding through the honors program that supported the unique needs of students. Other research was designed to answer questions such as whether students who participate in an honors program have higher retention and graduation rates in comparison to similar nonparticipants. Results revealed that participation in honors related to retention differences over time. Although data collection was limited for examining four-year graduation rates, Slavin, Coladarci, and Pratt (2008) hypothesized that if retention rates continued to increase over time, they would ultimately positively influence graduation rates. Collectively, these group performance studies provide quantitative support for how honors programs and colleges positively influence institutional performance outcomes. A scarcity of data, however, exists on the qualitative impact honors provides for the institution, evident in the presidential testimonies mentioned earlier. Such quality measures might include how honors transforms both the learning environments when it serves as a curricular laboratory for the campus and the quality of student engagement in classrooms across the curriculum through the honors students' passion for academic challenge.

Academically talented high school students are matriculating to universities based on their desire for academic quality at competitive prices. The institution's challenge is to engage faculty with these students in rigorous learning experiences that prepare students for professional and personal success and responsible citizenship in cost-effective ways. Honors education, viewed from an outcomes-based perspective, recognizes the need for measures of value added that capture the causal influence of institutions on their students. The very existence of honors programs and colleges is dependent on research that documents value in the face of internal competition for institutional resources. What measures are selected, when the measures are best applied, and detailed demographic descriptions

are probably best considered in the context of a national discussion among researchers, honors professionals, and organizations such as NCHC. Discussion might also include more widespread use of an honors designation in institutional student databases. An honors designation, if universally applied in institutional data management systems, can readily capture outcome measures such as program completion rates and graduation rates. An honors designation can also reveal outcomes observed only once, such as persistence or graduation. Future research is needed to address these issues in a more systematic way to quantify and qualify the value of honors programs and colleges for higher education institutions.

The research found in this monograph moves us forward toward achieving our research goals. The future of honors education is dependent on more robust research such as that emerging from the NCHC research colloquium that took place at Wayne State University. Such projects elucidate the value of honors education and are essential if honors programs and colleges are to survive and mature. In turn, universities and colleges benefit, quantitatively and qualitatively, from investments in honors communities.

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History and Current Practices of Assessment to Demonstrate Value Added

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With more than 1,500 honors programs currently in operation and hundreds of millions of dollars being spent throughout American institutions, external pressure is building for accountability in honors programs (Scott and Smith 2016). Today's society "expects colleges and universities to graduate students who can get things done in the world and are prepared for effective and engaged citizenship" (Keeling et al. 2004:5). Doyle (2004) also has noted the increasing scrutiny of higher education:

> the attention given to higher education's success at fostering student learning has increased in recent years. The rapidly rising cost of higher education and the increased attention to accountability only add to the pressure on colleges and universities to validate their lofty claims of higher learning. (p. 375)

Scott Carnicom and Christopher A. Snyder (2010) suggest that honors programs and colleges that do not participate in assessment

risk alienating the "accountability-driven entities" within the institution and the larger higher education community (p. 69). Higher education institutions continue to focus on data such as college grade point averages (GPA) and retention and graduation rates as determinants of success. Honors programs are admitting students, however, who are already expected to do well in higher education based on their prior high school success as measured by GPAs and standardized test scores. The use of these same types of data, therefore, is insufficient to evaluate the value added by an honors program or college. In 2006, Achterberg argued for the importance of research and accountability for the survival of honors, and very little has changed in over a decade. Achterberg (2006) stated:

> At present, there is little understanding of honors issues in higher education and few studies that show its worth one way or the other. Honors cannot survive the future on anecdotal evidence. If we do not act, and if we do not lead, there will be nothing in honors to save at all. (p. 39)

Sean K. Kelly (2013) suggests that rates of honors program completion should not be the only measure of success for an honors program and that sometimes, in fact, the high standards of the honors program could work against it, but he also points out that that does not mean the program has not been successful. Kelly (2013) argues that honors administrators should instead be assessing how students' involvement in honors correlates with engagement in university life, accomplishments after graduation, and higher satisfaction with their university experience, in addition to higher graduation rates. He agrees that these assessments could prove useful in promoting the position of honors within the institution. Because college and university administrators expect honors programs and colleges to provide evidence of added value to the students' academic careers through participation in such programs, greater involvement in outcomes assessment could be the answer that honors programs are seeking.

Assessment and evaluation in honors programs can serve multiple functions. By undergoing the process of assessment and

evaluation, programs can respond to concerns about and demands for accountability from internal and external audiences (Achterberg 2006). Internal audiences include college or university administration; external audiences include students, families, alumni, donors, and other taxpayers. More importantly, the use of assessment can contribute to a "shared understanding" of the values and mission of a program and lead to more informed decision-making and transparency (Jones and Whelburg 2014:18).

As the first wave of honors programs was being introduced at institutions of higher education in the first half of the 20th century, evaluation of these programs was "for the most part . . . subjective and nonscientific" (Heist and Langland 1966:257). According to Heist and Langland (1966), early evaluations "rarely extended beyond assignment of grades for performance" (p. 254). Evaluation efforts tended to be qualitative assessments that focused on student and faculty opinion rather than student outcomes and program quality (Heist and Langland 1966). When the Inter-University Committee on the Superior Student (ICSS) was established in 1956, attention was quickly given to the evaluation of existing programs, and by 1961 the ICSS invited the Social Science Research Council's Committee on Personality Development in Youth to lead a research conference (Heist and Langland 1966). This event marked a transition in evaluation for the field of honors education, and the studies that began appearing in *The Superior Student*, ICSS's publication, in the following decade, although still largely focused on student and faculty opinions, began to generate quantitative data that allowed programs to examine selection and retention issues (Heist and Langland 1966).

By 1963, 56 percent of honors programs reported using "simple statistical examinations of the number of dropouts from their programs . . ." and "almost half of all directors reported that their staffs had conducted or begun formal evaluations" within the five years prior (Heist and Langland 1966:265). Despite the progress, Heist and Langland (1966) stated that "the evaluative research conducted on honors programs to date [had] not provided a very adequate basis for ascertaining the real values, as well as the weaknesses, of

special programs for the superior or gifted student" (p. 274). Heist and Langland (1966) argued that additional evaluation needed to occur and that the particular variables that needed further attention included program participants, faculty, course content, physical and social context of the program, and the cost involved in attaining objectives.

Two early works about honors assessment and evaluation were by C. Grey Austin. He published *Handbook for the Evaluation of an Honors Program* in 1981, and in 1991 Austin's *Honors Programs: Development, Review, and Revitalization* provided extensive details about the self-study process and the process for undertaking a program review. The first faculty institute on honors education was hosted by NCHC's Committee on Honors Evaluation in 1997 and had 76 participants (Brown 1997). At this institute, the committee introduced the ideas of external review and self-study. John Grady, co-chair for the Committee on Honors Evaluation, said that these two approaches were the most effective ways to improve an honors program, and he was quoted as saying, "assessment is the means; improvement is the end" (Grady cited in Brown 1997:1).

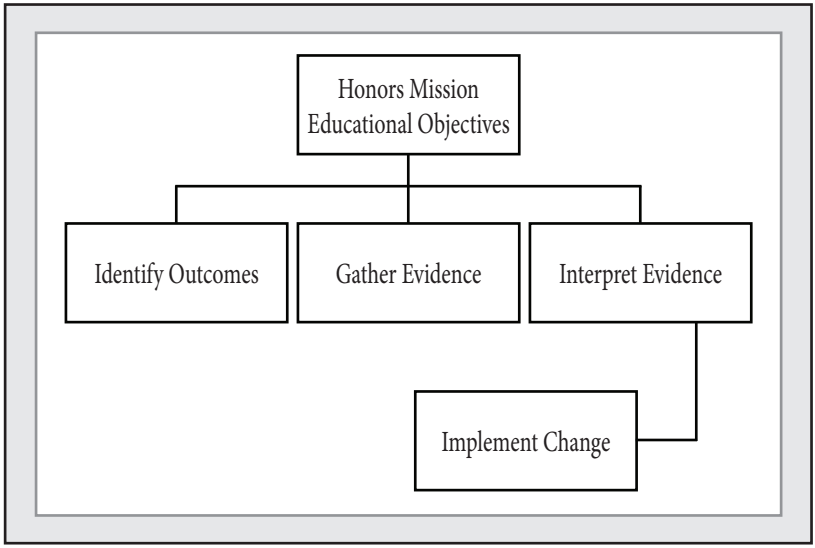
The focus on periodic evaluation shifted to systematic, ongoing assessment, and the first handbook was replaced by Otero and Spurrier's (2005) *Assessing and Evaluating Honors Programs and Honors Colleges: A Practical Handbook*, also published by NCHC. Figure 1 presents a diagram illustrating their approach to assessment and evaluation. In this monograph, Otero and Spurrier explain that in order to conduct effective assessment, as can be seen in Figure 1, the honors director or dean must first identify outcomes specifically related to the educational objectives of the program. The director must then gather and interpret evidence of how the program is or is not meeting those outcomes. Finally, after interpreting the evidence to determine whether or not the program is meeting its defined objectives, the director and faculty should implement any change that is needed. Otero and Spurrier (2005) provide honors administrators with information on how to evaluate and assess their programs using program self-study and a site visit in order to "demonstrate their strengths, address their weaknesses, generate

institutional support, and gain outside validation of their accomplishments and goals" (p. 5).

Otero and Spurrier (2005) suggested that an important component for assessing an honors program or college is the assessment of student learning. Assessment of student learning "is most effective when it reflects an understanding of learning as multidimensional and revealed in performance through time" (Otero and Spurrier 2005:9). This type of assessment also requires the use of both quantitative measures, such as student grades or credit hours earned, and qualitative measures, such as the review of a portfolio or capstone project.

In 2011, the Assessment and Evaluation Committee of NCHC issued a report, written by Otero, Spurrier, and Lanier, that focused on quantitative, measurable data. Their reason for such a focus was that they believed that "evaluation provides an opportunity for honors programs and honors colleges to demonstrate their strengths, address their weaknesses, generate institutional support, and gain outside validation of their accomplishments and goals" (p. 12). The committee report also suggests that the assessment process, which

Figure 1. Methods of Assessment Effectiveness

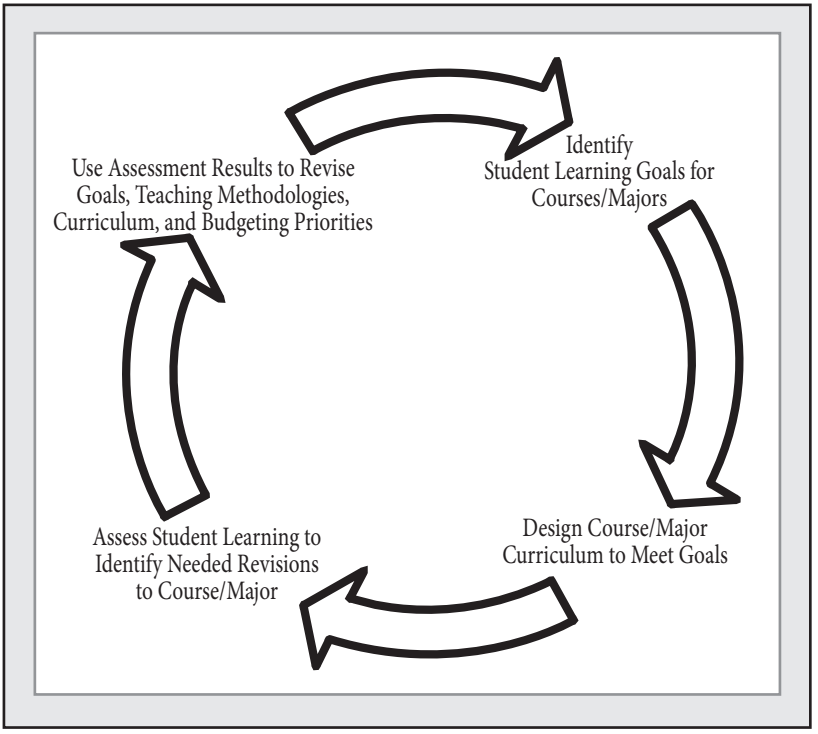


Note: Reproduced from Otero and Spurrier (2005).

is presented in Figure 2, is not just a collection of methods: it is cyclical in nature (Otero, Spurrier, and Lanier 2011).

Although assessment and evaluation have been widely adopted for the continuous improvement of academic programs within the larger realm of higher education, not all faculty and administrators in honors education are accepting of these practices. Joan Digby (2014) argued against outcomes assessment in higher education, stating that her "goal is not to score or measure students against preconceived expectations but to encourage the unexpected, breakthrough response that is utterly new, different, and thus exciting" (p. 4). The idea that student learning is not easily measured is an idea that remains prevalent within the field of honors education despite a long history of outcomes assessment being practiced within the field. Carnicom and Snyder (2010) suggest that the tasks involved

Figure 2. Feedback Cycle of an Assessment Plan



Note: Reproduced from Otero, Spurrier, and Lanier (2011).

in assessing student learning are a distraction for faculty from their primary responsibilities of teaching and research within their own discipline.

In response to these types of criticism, Driscoll (2011) conducted research based on her interest in learning about the extent to which the evaluation of honors programs was actively underway throughout the nation and whether programs had remained hesitant to adopt such practices. Driscoll (2011) conducted a survey of honors program administrators and learned that of the 38 participants, 57 percent did conduct at least some assessment of their program. Of the 43 percent who did not currently participate in assessment, 40 percent reported having a plan in place to introduce assessment. Other reasons given for not conducting program assessment included having a new program, a new administrator, or insufficient time. Although less than a quarter of participants voiced a philosophical opposition, Driscoll (2011) concluded that a consensus had not yet been reached among the honors community on the value of assessment as a quality assurance practice. Driscoll (2011) argued that the greatest need in the honors community in regards to assessment is "research to determine effective and reliable program measures" (p. 101) and how to apply them.

Very little discussion has taken place on the national level regarding the assessment practices currently being used throughout honors education nationally, so it is not widely known whether honors programs are engaging in program assessment or whether the results of program evaluations are being used to inform changes within the program. To better understand the extent to which honors programs are actively involved in program assessment, I designed a study to examine how actively program assessment is being conducted and what types of practices are being employed to examine student learning specifically. Having this knowledge will inform the national honors community about what work we still have ahead of us before we can create a culture of assessment within honors education.

METHODOLOGY

This study examines the extent to which and through what means individuals actively involved in the leadership of honors education are utilizing assessment of student learning. Specifically, a survey consisting of 26 items was distributed in fall 2016, using Qualtrics, a survey software designed to administer surveys electronically and to securely store the results. The survey collected data from respondents regarding their demographic information (age range, gender, race-ethnicity, and educational level). Respondents were asked to report their position within honors as well as their institutional type, honors program type, honors program size, and their years of experience in honors education. Respondents were then also asked to record the types of assessment, such as individual assignments, theses, capstone projects, and portfolios, utilized in their programs.

Overview of Study Participants and Recruitment Procedures

Selection of participants for the study was done using the purposive sampling approach. Participants were recruited based on their experience and active leadership in honors education. Specifically, the survey was distributed to 838 participants, each of whom is listed as serving as a current head of an honors program or college that is affiliated as an institutional member of NCHC.

Of the 838 individuals invited to participate, a total of 273 completed the survey for a total response rate of 32.6 percent. Of the 273 participants, 220 (80.6%) held a doctoral degree. A little more than half of the participants had five years or less experience as an honors administrator (54.5%) while 17.2 percent had ten years or more. Seventy-four (27.3%) were working at honors colleges, 197 (72.2%) were at honors programs, and two (.5% identified themselves as being with other.

RESULTS AND DISCUSSION

Program deans and directors reported a variety of types of student work that is being collected for use in outcomes assessment. Of the 245 respondents to this question, 126 (51.4%) collect individual student assignments, 116 (47.3%) assess a student thesis, 106 (43.3%) use a capstone project, 100 (40.8%) report using written compositions or research papers, 76 (31%) assess participation in internship or field experience, 69 (28.2%) collect portfolios, 39 (15.9%) utilize questions embedded in larger assignments, and 36 (14.6%) use exams. Other methods of assessment that were reported include independent project proposals, student survey instruments, exit surveys, alumni surveys, graduation and retention rates, student grades, student conference presentations, and student self-assessment of skill development.

Overall, it looks as if there has been an increase in the number of honors programs that are participating in outcomes assessment since Driscoll's 2011 study. Of those responding to the survey in this study, 63 percent say that their honors program has defined learning outcomes as part of a programmatic outcomes assessment, and 77 percent say that their program participates in discussions of programmatic outcomes assessment at least once per year. Additionally, 61 percent of participants reported that outcomes assessment findings are used in the analysis of program policies and procedures.

The outcomes assessment process as described by Otero and Spurrier (2005) involves multiple steps including identifying outcomes, gathering evidence, interpreting that evidence, and then using that evidence to implement change. To analyze the efficacy or level of preparedness that participants feel for participating in each step of the process, respondents were asked about their knowledge and proficiency. Regarding the first step of identifying program outcomes, 73 percent of participants feel that they are knowledgeable in the process of creating program-related outcomes. The next phase in the process is gathering evidence related to those outcomes. Eighty-four percent of respondents reported that they were capable of gathering appropriate evidence to be used to assess

program-related outcomes. Once that evidence is gathered, the honors director or dean must know how to interpret that evidence before it is useful to the program, and 73 percent believe that they are proficient in interpreting evidence gathered through the process of outcomes assessment. The final step in the assessment cycle entails using the evidence collected in the outcomes assessment process to make positive changes. Seventy-nine percent of participants report that they are adequately prepared to implement changes based on evidence gathered in the program review process. Based on these findings, the two greatest areas of need where deans and directors feel they could use the most support are in the processes of creating program outcomes and then actually interpreting the data they later collect. About one-fourth of participants reported being uncomfortable with these two areas whereas a higher number felt comfortable actually gathering the data and implementing change once the data was interpreted.

In addition to having the knowledge needed to effectively conduct program assessment, another factor that might be influencing the adoption of program assessment is the attitude toward and perception of assessment. While 67 percent say that they would participate in outcomes assessment activities even if it was not required by their college or university, half (51%) of the participants reported that they feel that administrators are focusing too much on outcomes assessment. While 72 percent of participants agree that outcomes assessment is a valuable component of the program improvement process, only 37 percent feel that it is a valuable enough component of student learning that it should guide the majority of program changes.

Some challenges to more fully implementing assessment as a part of the continuous improvement process within the honors community include the perception of its effectiveness and time commitment. Specifically, some participants questioned the credibility of program assessment: 24 percent reported that they feel that outcomes assessment is not a true reflection of program effectiveness and therefore that it should not carry much weight in the program planning process. Another challenge to effectively

assessing and improving honors programs is how time-intensive the process can be. Twenty-five percent of participants reported that the time invested in developing and maintaining an assessment program is not worth the information gained. If honors administrators are going to be able to meet the demands of college and university administration to prove their effectiveness, then it will become essential that future deans and directors understand how and to what extent program assessment can play a role in doing so. With nearly a quarter of the honors administrative population expressing doubt or hesitation toward the usefulness and worth of program assessment, there is still work to be done before a culture of continuous improvement exists within the honors community.

While the majority of participants (over 70%) reported being comfortable with all areas of the program assessment process, honors directors and deans could likely still use training in these areas. Despite the regularity that directors and deans are reporting that their programs are participating in discussions of outcomes assessment as well as reporting that they are prepared to interpret evidence and implement changes, only 31 percent say that outcomes assessment data are actually being used to guide the majority of program changes. This finding demonstrates that honors deans and directors are struggling to apply the skills they have to "close the loop" and effectively apply assessment practices for the process of continuous improvement. Additionally, only 22 percent of participants agreed that the skills they received in their graduate or disciplinary training effectively prepared them to administer outcomes assessment. In other words, administrators are having to learn these skills on the job.

The honors community, much like higher education as a whole, still faces a number of challenges before program assessment becomes a part of the culture. The national honors community needs to focus on developing the skills to conduct program assessment and use the findings strategically to develop goals for future improvement if it is going to encourage greater use of assessment. Only once we begin to adopt these practices will we then be prepared to quantify the value added by each of our programs.

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Proving the Value of Honors Education: The Right Data and the Right Messaging

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Administered within over 1,500 honors colleges and programs in two- and four-year institutions worldwide (National Collegiate Honors Council (NCHC) 2017; Scott and Smith 2016; Wolfensberger 2015), honors education serves the best interests of students and adds quality to the academic mission of host institutions by promoting the highest intellectual standards. Necessarily differing in form and content, all honors programs and colleges share the goals of identifying and supporting the most talented students as they achieve success in college and as they learn how to prepare not only for successful careers, but also for lifelong learning and meaningful civic engagement (Humphrey 2008). Certainly honors enthusiasts believe that these goals are met through innovative and challenging programming in areas of curriculum, undergraduate research, community engagement and service, and leadership.

These beliefs, however, need to be backed by empirical data. Do honors programs and colleges achieve their goals? Do they increase

the success of their students? Do they add measurable value to their institutions? How do we know? What data are needed to prove the worth of honors education, and how should those data be communicated to the administrators responsible for funding it—provosts, chancellors, and presidents? What are the obstacles to honors programs' and colleges' ability to gather those data and persuade various audiences? Nationally, a growing body of evidence confirms that honors students are more successful than other students (e.g., Cosgrove 2004; Pritchard and Wilson 2003). That every specific honors college or program know—not just hope or think—that it is effective in terms of recruiting, retaining, and promoting the success of its exceptional students is essential. Achieving this knowledge requires the right data, the right analyses, and the right communication. This paper details several ways to accomplish this task as well as some of the obstacles to this effort. We approach the idea of assessment and evaluation—or more simply, documenting positive effects of programs and persuading others of those effects—with social psychological research methods and while considering the politics of today's higher education landscape. Specifically, we discuss how to obtain, understand, and use the simplest to the most complex data to prove the ultimate value of an honors program, and how to tailor messaging about those data. Honors colleges and programs are the model for undergraduate recruitment and success. Our goal is to help readers prove it.

FROM THE SIMPLEST TO THE MOST COMPLEX DATA

At least three things are necessary to make a compelling case that honors education is worth institutional investment: the right data, the right analyses, and the right communication of those data. Honors deans and directors must know their audience and adjust the message appropriately. Sometimes the simplest data and the simplest analyses are sufficient, especially if the audience already values honors education. Sometimes more complex data and analyses are necessary because deans and directors may encounter skeptics about the worth of honors. Moreover, because universities and colleges today are often underfunded, administrators are constantly

looking for ways to scale back operations. Those hard decisions should be, but often are not, based on data illustrating whether programs benefit students. Complex data can prove the worth of the program, but they are worthless unless conveyed clearly and understood by the audience. An honors dean or director may only have an elevator ride to convince someone of the importance of a college's or program's worth. Impressions are formed quickly and are long lived (Fisk, Gilbert, and Lindzey 2010).

To obtain and use simple and complex data effectively, honors administrators must first choose the outcomes (the dependent variables, in methodological terms) that are to be measured—those outcomes that are most important to an institution. Of all the wonderful things an honors college or program does for a university, usually the most important ones to the financial bottom line (i.e., increasing tuition) are recruitment and retention: attracting the best students to the campus and retaining them until they graduate. Next, we share a few examples of how to provide evidence of such value, going from the simplest to the most complex evidence.

WHAT IS THE RECRUITMENT VALUE OF HONORS?

The first example is simple yet exceptionally effective in many situations. What is the recruitment value of honors? At the University of Illinois at Chicago (UIC), the dean (the first author of this essay) found that a particularly effective data point was that "65 percent of freshmen said they 'would not have come to the University of Illinois at Chicago had it not been for the UIC Honors College.'" This data point was self-reported by students using a poll of the entering freshman class with only one survey question: "Would you have come to UIC had it not been for the Honors College?" Fully 65 percent of all honors students and 75 percent of our most prestigious diversity scholarship students said "no."

Of course, people are not always accurate in their self-reports (Azar 1997), but they certainly can be, especially when they remember what they are being asked and when they have no motivation to lie about it. This survey item meets those criteria. Importantly, this piece of data costs nothing to obtain, is easy and quick to

communicate, and is persuasive. It is elegant in its simplicity. And it is music to the ears of an admissions director, provost, and president, each of whom is interested in supporting enterprises that increase recruitment, especially of top achievers, thereby bringing more tuition money to the university and relieving some of the financial stresses that most institutions suffer.

WHAT IS THE VALUE OF HONORS EDUCATION IN SUPPORTING STUDENT SUCCESS?

The next examples consider a different yet also crucial question: What is the value of honors education in supporting student success? Setting aside distal measures such as lifelong success indicators, which are exceedingly difficult and expensive to collect, the most important proximal measure of the impact of honors on student success is whether students graduate. We present three ways to address this question of the impact of honors education on graduation rates. The first and second approaches reflect the standard of "elegant simplicity" while the third provides a similar message but is far more complicated, far more difficult to convey, yet far superior if the audience really cares about and understands data and statistical analyses. Offering evidence to an institution's administration that honors helps retain and graduate students is important because administrators usually care about students being successful at their institutions and because retaining students also generates tuition revenue and affects the financial bottom line. Further, we believe that all honors programs and colleges should be performing these analyses regularly, not only to prove their effectiveness to others, but also to assess for themselves whether they are effective.

Example 1: A Simple Comparison

Question: Do honors students graduate at higher rates than other students on campus? Answer: Yes, of course. At the UIC Honors College, where our students are 40 percent Pell-eligible and so diverse that there is no racial majority, the graduation rate

was recently 88 percent, while the campus average of non-honors students approached 60 percent. These two simple data points are impressive, and for many purposes, such as talking with prospective parents, they are enough. For other purposes, however, these numbers are not sufficient because they are not definitive about the impact of honors education specifically. Skeptics can claim that honors students are more successful (e.g., more likely to graduate) for reasons other than their honors experiences; they maintain these students are smarter to start with, which people often wrongly think is measured by standardized test scores; better prepared; richer; not first-generation college students; and a dozen other qualities that are stereotypical, although not always true, about honors students.

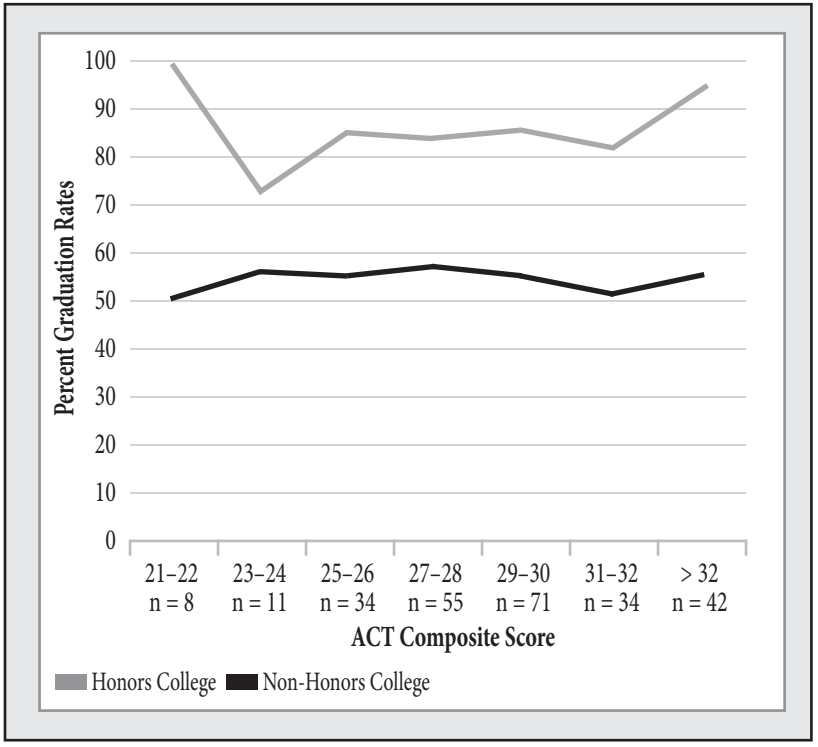
Allowing people to believe these notions is problematic. They are claiming that honors students would have been just as successful even if they had not been in the honors college or program. If that were true, honors education would not be needed. Experienced honors administrators know this claim is not true—if only in our gut. It is not merely what students bring with them to an honors program that determines their greater success; it is what honors education does for them once they get there. Thus, the dean's or director's job is to prove that honors education has an effect *above and beyond* various individual students' entering characteristics. Examples 2 and 3 consider how to make that case.

Example 2: Data that Begin to Account for Students' Entering Characteristics

In Figure 1, we provide a simple way to illustrate the increased success of honors students while also accounting for alternative reasons for this success. These data are from a recent cohort of University of Illinois at Chicago Honors College students. This graph shows an outcome (in this case, graduation rates) as a function of whether students are in the honors college, but further, also as a function of a third variable that is often claimed to account for the increased graduation rate of honors students: ACT score.

Specifically, five-year graduation rates (percentages of students entering at the same time) are graphed on the vertical (i.e., Y) axis, and groupings of ACT scores are graphed across the horizontal (i.e., X) axis. The top gray line shows the graduation rate of honors college students; the bottom solid line represents all other students (non-honors college students) at the university in that cohort. The main effect, statistically speaking, of honors is clear, with that top gray line being 20–25 percentage points higher than the bottom solid line. But most importantly, that difference pretty much holds steady across each level of ACT score, down to around 21 or 22 ACT points. In other words, the effect of honors education on graduation rates is evident regardless of entering ACT scores.

Figure 1. Five-Year Graduation Rates as a Function of ACT: UIC Honors vs. Non-Honors Students



Note: n indicates the number of students in the honors college sample.

One could similarly plot graduation rates across various other alternative explanations one by one, such as the number of entering AP credits or high school GPA. If such a graph is explained clearly and simply, anyone can readily understand it regardless of statistical expertise; the graph makes it possible to see the effect of honors. It is therefore effective across audiences with widely varying levels of statistical sophistication. For example, we used it in our annual report, which is aimed at administrators, faculty, students, alumni, donors, and other friends (Bottoms, Mehta, and McCloud [Williams] 2015). That gap between the gray and solid lines in that graph represents the "value added" of the honors college and clearly illustrates that, again, what is consequential is not what students come with when they enter college but what honors does for them once they arrive.

Another point worth noting in Figure 1 is the 100 percent graduation rate for honors students with ACT scores of 21 and 22. These scores are not often seen among honors students, given typical admissions policies. Although only eight honors students had scores in this range, their success demonstrates better than any other group the value that honors adds. Moreover, students at the top of the ACT distribution—even those students with ACT scores of 35 and 36—are no more likely to graduate than those with much lower scores, and non-honors students with 35 or 36 are certainly less likely to graduate than the honors students with the lowest ACT scores. Considering how flat both the gray and solid lines are is important: ACT score—above about 21 or 22—is not a strong predictor for anyone at UIC, which can be seen here because honors and non-honors student groups have been pulled apart, that is, separated. Note that if this graph had merged the two groups into only a single line, one would have seen a slight upward slope from left to right, a trend that would also show up as a small statistical correlation if one did the calculations. But the graph in Figure 1 illustrates that such an association of ACT with graduation rates is due to honors college membership—simply more of the honors college students have higher ACT scores, and the honors students also graduate at higher rates. That is, higher ACT scores are somewhat

confounded with honors college membership, so when honors students are pulled out, the line flattens, and the correlations drop to non-significance, at least when the lowest ACT scores in the analysis start around 21 or higher. Administrators at universities often wrongly use such a one-line approach, without disentangling honors and non-honors students, in arguing that ACT scores predict student success. This graph, therefore, underscores the importance of the growing and well-supported movement to admit students based on factors other than standardized test scores.

Example 3: Complex Data, Complex Analyses: A Comparison that Accounts Well for Students' Entering Characteristics

The data presented in Figure 1 provide an important illustration for administrative audiences, but ultimately, it is still not a completely definitive answer to claims of alternative explanations because it considers only one alternative explanation at a time, such as ACT, and because it is not a statistical analysis that can provide a more specific estimation of effect sizes. Statistically speaking, various predictor variables, such as ACT, high school GPA, or whether a student is first generation, can be interrelated with each other, so one needs to look at all of them simultaneously to understand the unique effects of each and to understand whether honors education has an effect above and beyond all those other factors. A more sophisticated approach that takes care of these concerns is to use multivariate statistical analyses, which control for many variables at once to see the unique effect of the honors experience.

Researchers at UIC have done such analyses, and this study is presented in detail in another chapter of this collection (see Diaz, Farruggia, Wellman, and Bottoms (2019) herein). To summarize briefly, we studied over 21,000 students who entered UIC between 2006–2012, 14 percent of whom were honors college students. The sample was unusually diverse, as is our institution (*U.S. News & World Report* 2017), with a mean age of 18 years; 55 percent women; 37 percent first-generation college students; 45 percent Pell-eligible;

and 24 percent Asian, 10 percent African American, 21 percent Latino, 35 percent white, and 10 percent mixed or other ethnicities/races. We conducted five separate analyses for five outcome measures: hierarchical linear regression models were used to assess the effects of honors college membership and other variables on first-semester GPA and number of credits completed in the first year of college, and logistic regression was used to assess the outcomes of retention from the first to second year, 4-year graduation rate, and 6-year graduation rate. In addition to determining the impact of students' membership in the honors college, we tested for the potential effects of nine additional predictor variables that might be confounded with honors college membership, and which therefore could be alternative explanations for the effect of honors. Specifically, in each of the five analyses, all predictor variables were entered into six steps or "blocks" as follows: (1) age and gender; (2) ethnic/racial background; (3) parent income and first-generation status; (4) entering high school GPA, number of AP credits, ACT composite score, and UIC writing placement; and finally (5) honors college participation. Readers need not understand statistics deeply to appreciate the basic idea of how these analyses work. Essentially, these analyses detect and pull out the statistically significant (i.e., reliably detectable) effect of one variable after another, until all variables have been accounted for. In other words, the first step (block) of one of these analyses first accounts for (or pulls out) whatever statistical impact age and gender might have. Then the next steps account for any effect that race/ethnicity has, and so on until the only variable left is honors college membership in the last step. If the effect of honors college membership were due to its being confounded with any or all of the other variables, then logically, it would have no statistically significant effect when added in step 5, because at the end of the analysis, the effects of all the other variables have already been accounted for. If honors college membership still has a significant effect in step 5, then that effect is really due to honors and not to any of the other variables that have already been accounted for.

As detailed later in this volume, Diaz et al. found that compared to non-honors students, honors college students had higher

first-term GPAs, earned more credits their first year, were more likely to be retained to their sophomore year, and had higher four- and six-year graduation rates. Importantly, those effects remained even after the analyses controlled for the effects of all the other nine alternative variables: honors college membership still had a significant effect in step 5. Therefore, the analyses illustrated the significant impact of honors college membership above and beyond the effects associated with nine other variables that are often confounded with honors college membership, thus ruling out many alternative hypotheses that are often used by critics to explain away the positive effects of honors education.

Further, our analyses also indicate that the benefits of honors college membership increase with the amount of time students spent in the honors college. This phenomenon argues against another alternative explanation for the impact of honors education—that honors students self-select because of higher initial internalized motivation to succeed and that this motivation rather than their experiences in honors leads to their higher levels of success. Another argument against this alternative motivational explanation is that high school grades are surely, at least in part, a simple partial proxy for motivation, and we also controlled for that and still found the effects of honors to be significant.

Finally, our analyses also revealed another important factor: African American and Latino students benefited more than did students in other racial/ethnic categories, at least in terms of first-term GPA and first-year credits earned. Documenting that honors can play a role in decreasing the huge gap in educational achievement between underrepresented minority students and others is important. Being able to present such evidence is truly gratifying. Honors colleges and programs can and should admit more promising underrepresented minority students, de-emphasizing factors such as standardized test scores. When we took this step at UIC, skeptics opined that we were only setting students up for failure. We were not. Our analyses provide evidence that honors supports their success.

LIMITATIONS, POTENTIAL BARRIERS, AND OTHER CONSIDERATIONS

Finally, it is worth considering potential limitations and obstacles to the approaches we have discussed here in order to be prepared to address them if they are mentioned by the audience one is trying to persuade. First, no single analysis is perfect, and the best strategy for explaining a complex human behavior such as college student success is to have a multifaceted plan that builds a case on the basis of converging evidence. Even in our multivariate regression analyses, we certainly did not test every possible variable that could be confounded with honors college membership; thus more work can be done to identify and test other alternative hypotheses. And of course, all of our data come from students at one university. We have presented several types of converging data, but many other possibilities exist depending on the particular program and on what outcomes and predictors are important at the institution.

Second, even though the analyses support the contention that honors education is effective, they do little to explain why. Honors programs are home to many academically enriching (i.e., "high-impact practices" à la Kuh 2008; Mayhew et al. 2016) and socio-emotionally supportive programs, including specialized professional, peer, and faculty advising; engaged living communities; financial assistance; special academic work such as small honors classes, capstone theses, and research; leadership experiences; and service learning and civic engagement experiences. All of them have been linked in general student populations to increased college success (e.g., Inkelas and Weisman 2003; Freeman et al. 2007). But questions remain: which among those programs are most effective at improving student outcomes? Which ones contribute most to the positive effects of honors education? Investigation of these factors is not only important for supporting lobbying efforts on behalf of an honors college or program with university administration, but also for program evaluation and development purposes, for understanding where to focus resources, and for staff training. Further, it is important to identify which practices are best for which students.

This information could lead to understanding why the effects of honors experiences are stronger for students of some races/ethnicities compared to others. A tailored approach to honors education, heeding individual differences in student needs, fits with the values of honors. Such analyses would also provide information about practices that help all students, not only honors students—again, a goal that fits well with the values of honors.

Third, we discussed only relatively short-term outcome measures, such as credits earned during the first year, college GPA, retention, and graduation. These measures are certainly important, yet the literature on program evaluation makes it clear that many ways to determine effectiveness exist. Higher education, especially honors education, claims to prepare students for a better life beyond college. Does it? Ideally, honors programs would track their graduates to obtain richer long-term measures of success, including evidence of lifelong learning and being responsible in civic society.

Fourth, one barrier to programs or colleges collecting the type of data and doing the kinds of analyses suggested here might be that honors administrators, especially deans and associate deans, while possessing expertise in a broad range of areas, often come from disciplines unfamiliar with multivariate statistical techniques. If they lack these skills, one solution that will work is to request that the office of institutional research perform the analyses. Of course, institutional research and reporting staff members may not have time to fulfill individualized department requests, or they may specialize in purely descriptive analyses rather than social science hypothesis testing and analyses using multivariate regression or hierarchical linear modeling (HLM). If that is the case, another possibility is engaging successful faculty members from the social sciences to lead these efforts. Faculty who have published papers using these analyses to examine human behavior or highly qualified graduate students under their supervision can conduct and explain the analyses. These researchers should be encouraged to capitalize on their need to publish by allowing them to use the data for testing theories that interest them, and they should be compensated appropriately whenever possible.

One caveat to remember when selecting faculty partners is that a little statistical knowledge is a dangerous thing. There are many ways to conduct technically legitimate analyses, especially regressions, but without expertise in using and interpreting such analyses, one can end up with an inaccurate story of human behavior. People who are new to statistics or use them infrequently might not understand how to answer various questions using the proper analysis or the proper statistical controls. Consequently, relying on truly experienced faculty partners is advisable. Finally, just because handling data statistically might be unfamiliar to an honors administrator, that is no reason to fear it or accompanying tasks such as having a plan reviewed by the Institutional Review Board. The right faculty partners will be well-versed in how to present studies for human subjects review, and the study could even move forward with what is known as "exempt" status if it is done with appropriate safeguards for the confidentiality and anonymity of student participants.

Fifth, funding may not be available to support this work. Because of a tight budget, honors administrators might decide that using resources to support programs rather than investing in evaluative data collection and analyses is a better choice. We challenge that assumption. If administrators do not know whether their programs are working, continuing them might not make sense. It is essential, then, to recognize the importance of investing in data analysis, understanding that the day will come—if it has not already—when an administrator above the honors college or program will demand good evidence before continuing funding and institutional support. Before that day arrives, honors deans and directors should designate or redirect program funds or look for alternative sources of support such as grants to conduct these studies. We would also urge honors administrators to be creative: many private foundations have an interest in higher education, especially in research that can generalize nationally, and some foundations and even individual donors may specifically be interested in high-achieving students, or else we would not have examples such as the Lewis Honors College, the Schreyer Honors College, or the Barrett Honors College. The campus office of development or advancement can

help honors administrators identify foundations and people who care about such causes. We also suggest that honors administrators "Google" around on their own to find possible contacts. Also, businesses invest in efforts that have the potential to enrich their pipeline of employees, so we advise honors administrators to make connections in their locale. Honors directors and deans can lobby honors organizations such as NCHC to create special small grants for this purpose, and, as mentioned above, it is always possible to engage faculty and graduate students who might be willing to work for the benefit of potential publication alone.

Finally, perhaps the most depressing potential possibility is that no one will listen to or believe the honors administrator, even when the right data are presented, analyzed properly, and communicated correctly. Some opponents to honors, especially those with a dangerously small amount of statistical knowledge will pick at everything an honors administrator does—no matter what variables one tests or how many tests are run. No matter how conclusive the analysis is, it may never be enough to convince some for whom there will always be an alternative explanation. To that end, assembling converging data is essential. In addition to the kinds of data we have discussed, honors administrators should add qualitative or descriptive information and case studies with narratives about students who have succeeded because of honors and despite academic false starts. Being thorough and persistent is critical because people may reject the results outright for no good reason. If social psychologists know anything, it is that people believe what they want to believe (i.e., the "confirmation bias," e.g., Kassin, Dror, and Kukucka 2013; Rosenthal and Jacobson 1966), and leaders in higher education are no exception. The first author once presented data to an interim provost who was so dismissive that he only smiled condescendingly and said he would "have to wait to see the publication." Many competing political interests flourish at a university, but not all of them are admirable. Certain special interests may trump good data and best intentions. That does not mean, however, that honors administrators should not do the research for their own internal evaluation needs or for discussion with high-level academic administrators

when regime change occurs at high levels of the institution's administration, as there is fairly often these days. Moreover, producing such research can add to the accumulating evidence in the growing publication record about the impact of honors education. Our advice is that honors administrators should steel themselves, be patient, do the right thing, collect good data, analyze those data correctly and honestly, explain the analyses well, use the right data for the right situation, publish it if possible, and above all, be persistent.

CONCLUSION

Nationally, the appreciation of multivariate social science statistical methods to investigate many aspects of higher education is increasing. Honors should be no exception. In turn, such analyses will increase the quality of honors education, especially if leaders have the courage to share their results and act on them appropriately. Some efforts are already underway, such as this monograph, which follows from fruitful discussion among many concerned leaders in honors education who met at the May 2016 NCHC-sponsored honors research colloquium at Wayne State University, organized by NCHC Past President Jerry Herron to further his initiative as president to emphasize honors research. Another example is the establishment of Honors Education in Research Universities (HERU), a collective with the goal of "fostering the extension of the unique research mission of our institutions to our honors colleges and programs . . . to truly understand the efficacy of our efforts"; and the creation of HERU's new online open-access journal, *Honors in Higher Education*, to "foster creative thought about how to achieve a more sophisticated level of self-examination through research" (Bottoms and Gutgold 2016). More research is needed, and we see many indicators that leaders in honors are rising to the occasion.

Especially in fiscally tight times, it is important for any honors college or program to prove that it is effective. The right data, the right analyses, and the right communications will reveal unequivocally that honors education is an effective model for undergraduate recruitment and success.

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Honors Education Has a Positive Effect on College Student Success

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Over 1,500 U.S. universities and colleges have honors programs or honors colleges to provide extra support for their most prepared students (National Collegiate Honors Council 2018; Scott and Smith 2016). Honors programs typically provide additional financial support, faculty mentors, smaller class sizes, and other benefits compared to what institutions can typically offer all of their students. Students involved in an honors program usually earn higher GPAs compared to highly motivated students not in an honors program (Pritchard and Wilson 2003) and are more likely to stay in college and graduate within four years (Cosgrove 2004).

The additional success of honors students compared to non-honors students is often attributed to their experiences in the

honors program itself. But it could be argued that honors students are more successful simply because they arrived at a university with better preparation or higher socioeconomic status. Of course, no explanation can be definitive without a randomized control trial, which would be difficult if not impossible in real-world situations, but converging evidence from multiple sources can provide a reasonable answer (Bottoms and McCloud 2018). Considerable research to date on the impact of honors education lacks the appropriate controls to account for alternative explanations for the differences often observed in the success of honors versus non-honors students. The present study tests the impact of an honors college on the successes of a diverse, urban student sample while statistically accounting for pre-matriculation background factors and student characteristics, thereby ruling out many key alternative explanations for the association between honors education and college student success.

PRIOR RESEARCH ON THE IMPACT OF HONORS EXPERIENCES

Many researchers have found a positive association between honors colleges and college success. For example, Hébert and McBee (2007) found that honors programs and the community they create allowed students to become involved in more than academics and to develop intrinsic motivation and self-efficacy. Castro-Johnson and Wang (2003) found that honors students had a higher first-year GPA and higher emotional intelligence scores than their non-honors peers, and they also had higher entering high school GPA and ACT scores. Cosgrove (2004) compared students who stayed in an honors program throughout their college career to (a) other high-achieving students not in the honors program and (b) students who started out in the program but failed to complete it. Those who stayed in the program had higher GPAs and shorter times to degree completion compared to both other groups. Keller and Lacy (2013) found that compared to similar non-honors students, students who participated in an honors program had higher rates of first-to-second-year retention, as well as higher four-, five-, and six-year graduation rates. Such studies are useful in forming

a growing body of converging evidence illustrating the value of honors programs, but they are often limited by examining only one cohort, including samples that are not ethnically diverse, and not controlling for potentially confounded and explanatory factors.

Why might honors programs promote student success? Honors colleges and programs might promote student success because they provide students with myriad supports across many domains: social, emotional, informational, financial, and academic. For example, Hébert and McBee's (2007) qualitative study concluded that honors programs can provide students with intellectual and psychosocial growth, especially by providing faculty mentors. Another hallmark of the academic experience provided by most honors programs is the use of what Kuh (2008) referred to as "high-impact practices," including first-year seminars, learning communities, collaborative assignments and projects, problem-based learning, undergraduate research, service learning, and capstone courses or projects. (For reviews of work addressing such activities, see Kuh, Kinzie, Schuh, Whitt, and Associates 2010; Mayhew, Rockenbach, Bowman, Seifert, Wolniak, Pascarella, and Terenzini 2016; McKay and Estrella 2008). High-impact practices lead to greater student retention and graduation rates because, compared to standard educational practices, they engage students more in their college work and with faculty members, their peers, and their campus so that they feel a greater sense of academic and social belonging to their campus. Having a greater sense of belonging to the campus has been positively associated with personal motivation, perceptions of professors, and a greater sense of social acceptance (Freeman, Anderman, and Jensen 2007). For example, a typical centerpiece of honors education is undergraduate research experiences, especially a capstone project. Considered a high-impact practice, research increases student engagement with faculty members and peers on campus (Hartmann, Widner, and Carrick 2013; Kuh 2008) and is related to academic achievement (Webber, Laird, and BrckaLorenz 2013). Students have reported satisfaction from connecting their research to real life, developing a community with other students, finding mentors among the faculty involved, and gaining ownership over their learning experiences (Falconer and Holcomb 2008).

RACIAL / ETHNIC DISPARITIES IN COLLEGE STUDENT SUCCESS

Much research has examined racial/ethnic disparities in college student success, especially the tendency for African American and Latino/a students to graduate at substantially lower rates compared to White and Asian American students (National Center for Education Statistics 2013). Underrepresented minority students are typically considered to be "at risk" (Schreiner, Noel, Anderson, and Cantwell 2011), risk that is often explained by background characteristics such as being the first in their family to attend college, coming from a lower socioeconomic status, or being an ethnic minority student enrolled in a predominantly White institution (e.g., Bryan and Simmons 2009; Walpole 2008; Zwick and Sklar 2005). Compared to their White peers, underrepresented minority students might have lower social capital and less access to networks that can provide support for college students, and as a result they have less access to resources such as money and academic and socioemotional supports (Bastedo and Gumport 2003).

Because of such disadvantages, participation in a supportive environment such as an honors program might provide Latino/a and African American students with support and resources that they do not have access to otherwise, perhaps even disproportionately more so than White students. In fact, Seifert, Pascarella, Colangelo, and Assouline (2007) found that underrepresented students in an honors program scored higher on a reading comprehension exam than those not involved in honors, while there was no difference in scores between the White students who were in the honors program versus those who were not. Honors programs might be particularly helpful for ethnic minority students who generally report fewer and less satisfying interactions with faculty, both socially and academically. In fact, Inkelas and Weisman (2003) found that students within an honors program were more likely than non-honors students to discuss academic issues and concerns with faculty and peers.

Further, positive faculty-student interaction is associated with successful academic performance (Anaya and Cole 2001) and varies according to minority status. McKay and Estrella (2008)

found that service learning helped first-generation students succeed academically via greater engagement in course material with faculty members. Anaya and Cole (2001) noted that underrepresented minority students might be less likely to engage with faculty than their White counterparts, which could explain some of the disparity in their college success. Lundberg and Schreiner (2004) found that African American students reported lower levels of satisfaction with faculty relationships compared to White students. African American students and Native American students reported the most interaction with faculty, but they felt they had to push themselves harder than White students to meet faculty expectations. They also reported less satisfying relationships with faculty. Thus students of varying racial/ethnic backgrounds perceive differences in experiences with faculty, experiences that are important to college success. Again, because honors colleges and programs promote high-quality faculty/student interaction, honors education might have even more influence on underrepresented minorities than on other students.

As previously mentioned, increased honors student success might be due to stronger feelings of belonging on campus, something that might also be more important for underrepresented students than White students, again providing reason to expect honors education to provide even more benefit for underrepresented students. For example, Nora, Barlow, and Crisp (2006) found that one of the reasons why minority students were not retained is that they did not have a strong sense of belonging. Similarly, Lundberg and Schreiner (2004) found that for many African American students, dropping out of college was less related to GPA than to feeling isolated and not supported on campus. Kuh (2008) and others claim that for this sense of belonging to occur, students must feel that there is a "critical mass" of students like them on campus. One could argue that an honors program provides minority students with a different type of critical mass to identify with—close peers of a similar high-achieving mindset. In support, Fries-Britt (1998) found that African American students in a merit-based scholarship program did not feel a sense of belonging and community with non-honors

African American peers, feeling instead more connected to other high-achieving students, even those from different racial/ethnic backgrounds. The students reported believing that the non-honors African American community thought that program participants had special treatment over them, but the students in the program believed that they benefitted from having the additional resources provided to them, having a community of high-achieving African Americans to interact with and gain support from, and having faculty with high expectations of them. Therefore, honors programs might isolate students from others not in similar programs, but they can also foster a sense of belonging and social support.

STUDY RATIONALE AND HYPOTHESES

Little research addresses ethnic/racial group differences in student success in the context of honors education (for a discussion, see Coleman, Kotinek, and Oda 2017). This gap is probably because most honors programs admit relatively few underrepresented students, although we know of no studies specifically documenting this situation. Studies that do include race and ethnicity rarely have a truly diverse population, often have a disproportionately high White demographic, describe their sample broadly as "White" and "non-White" (Singell and Tang 2012; Keller and Lacy 2013; Furtwengler 2015), or provide a detailed breakdown without providing separate results for each group (Pritchard and Wilson 2003). In addition, most studies do not control for other student background factors, such as high school performance, parent income, and parent education. For example, Furtwengler (2015) found that students who were typically less likely to enroll in an honors college program (calculated using a propensity score) were those who benefitted most from the program in terms of higher GPA, yet this study failed to control for parent socioeconomic status and parent education, nor did it include measures of retention and time to graduation. Our study meets the need for more studies of ethnically diverse populations within honors and is especially important given the unique experiences and needs of ethnic minority students in universities.

To preview, we used statistical analyses to test the association of honors involvement with greater academic success once other potentially explanatory background variables were accounted for and to determine whether underrepresented minority students benefitted more from honors education than did other students. We hypothesized that when student background variables were accounted for, compared to non-honors students, students in a university honors program would (1) have higher first-term college GPA, (2) earn more credits during the first year, (3) be more likely to persist from the first to second year, and (4) be more likely to graduate at four and six years after matriculation. (Most honors students who graduate do so in four years; see Cosgrove 2004.) We included first-term GPA, first-year credits earned, and first-to-second-year retention as outcomes because success in the first year of college is an important predictor of graduation and success in college (Tinto 1993). In addition, we predicted that the effects for Latino/a and African American students compared to their Asian American and White peers would be larger. Finally, we also explored for differences in the associations between honors participation and student outcomes based on the student's point of entry into the honors program and how long students were in the honors program. That is, while many students began their time in honors programs during the first semester of their first year, some students at the university entered later after demonstrating academic success at the institution. (We did not include students who transferred into the university from other institutions.) We expected that more time in an honors program would lead to even more positive academic outcomes.

THE RESEARCH CONTEXT

We conducted research at the University of Illinois at Chicago (UIC), a large, Midwestern, public, urban research university with over 17,000 undergraduate students and a well-established honors college. Although students may apply to this honors college any time before their penultimate semester in college, most enter as first-year students. Students in the honors college are selected in a

holistic manner that considers background characteristics such as high school grades, record of civic engagement and other extra- and co-curricular activities, various aspects of verbal and interpersonal performance during an in-person interview, the quality of essays written at two different times, diversity considerations broadly defined and consistent with considerations laid out in *Grutter v. Bollinger* (2003) and upheld in later decisions such as *Fisher v. University of Texas* (2016), and to a lesser extent ACT scores. Any high school seniors may apply to the honors college as a part of their college application or later in early spring before university matriculation. Those who have reasonably strong academic backgrounds (usually high school grades of B or higher, but not necessarily high ACT scores) are invited to participate in an in-person interview, which is conducted and assessed by trained interviewers, and to complete written essays to allow for the assessment of other criteria.

This honors college provides a host of supportive experiences for students, including high-impact academic practices such as two required small, interactive, honors-only, three-credit general-education first-year seminars, which include field trips, projects, and papers that engage students with each other and their professor. (For details, see Bottoms, Mehta, and McCloud [Williams] 2015.) Honors college first-year students also take one-credit first-year-experience seminars that prepare students to take advantage of what the university and honors college offer, facilitated by a peer mentor and often taught by the students' professional honors advisor (Chang, Hall, and Bottoms 2016). This advisor provides academic, informational, and socioemotional support throughout the students' years in college. Co-curricular and extracurricular activities with academic components are also a necessary aspect of membership in the honors college, with 45 hours of honors activity being required of the students each semester. These activities range broadly given student interest, and they include student organization leadership, community service learning projects, one-credit advanced honors seminars, study abroad, extra projects contracted in existing courses, research and other creative independent studies, and internships. All honors college students are also required to participate in research or other comparable scholarship in their

discipline, including an independent senior capstone project with faculty oversight. Honors college students also receive extra academic and disciplinary advising and mentoring from an assigned honors college Faculty Fellow, with whom they meet at least twice per semester for academic and career guidance and support. The honors college also provides myriad other supports, such as hosting lectures and activities where students and faculty interact, field trips to major cultural events in the city, and access to special facilities such as computer and study rooms and living-learning communities in the residence halls. The curriculum and programs often include specific attention to diversity, broadly defined, reflecting the nature of the college's unusually diverse student body (Chang et al. 2016).

Previous research at this university on the impact of pre-matriculation characteristics on student success has demonstrated that high school grades, Advanced Placement (AP) credits earned, and race/ethnicity have consistent and significant associations with grades, retention, and graduation (Farruggia, Bottoms, Leighton, Wellman, and Moss 2016; Farruggia, Han, Watson, Moss, and Bottoms 2016). Although with very small effects and not consistent across all outcomes, gender, age, parent education, parent income, ACT score, and placement were also sometimes associated with student success at this university.

METHOD

Participants

The sample comprised all full-time first-year students who entered the university in the fall terms between 2006 and 2012 (inclusive) (N = 21,723). The group (55% female, M age = 18 years, SD = .79) was ethnically diverse (35% white, 24% Asian American, 21% Latino/a, 10% African American, and 10% other) and socioeconomically diverse (37% first-generation college students; 45 percent eligible to receive Federal Pell Grant funding; parental income M = $67,037). Fourteen percent of the students were in the honors college for at least one term during their time at the university.

Measures and Procedure

All data were archival, downloaded from the university data warehouse in keeping with an approved university Institutional Review Board protocol and consent from the Provost, Director of Financial Aid, and the Vice Chancellor for Students. Student background data included gender, race/ethnicity, and age (in years). Parent background data included parent income in dollars and parent education, with the latter used to code students as being first generation in college = 1 (neither parent having graduated from college) or not first generation in college = 0 (one or both parents had graduated from college).

Pre-college-matriculation data (i.e., high school achievement data) included students' high school GPA, number of AP credits earned, ACT Composite scores, and writing-course placement scores. High school GPA was unweighted and measured on a 4-point scale (where 4 was highest). Number of AP credits earned reflected the total number of UIC credits awarded to a student based on AP tests taken in high school, as well as dual enrollment credits earned (which were rare). Writing-course placement scores came from either (a) placement exams taken the summer before the first semester in college or (b) on the basis of automatic placements based on AP test scores, ACT/SAT scores, or community college credits. A score of 1 indicated that the student was assigned to the most introductory, non-credit-bearing writing course level, and a score of 5 was the most advanced writing course level. Data were largely complete (99%+) for all of these indicators.

We measured honors college participation in three ways: (1) dichotomously: whether the student was in the honors college starting the first semester of the first year in college (yes = 1, no = 0); (2) as a ratio term: the sum of the number of semesters the student was in the honors college divided by the total number of semesters at UIC; and (3) dichotomously: whether a student was ever in the UIC Honors College during any semester (yes = 1, no = 0). (First-year students could enter the honors college after the first semester.)

We measured success in terms of first-semester GPA, credits earned in the first year, first-to-second-year retention, four-year

college graduation, and six-year college graduation for the first measure of honors participation. For the ratio term and whether the student was ever in the honors college, we measured success in terms of four-year college graduation and six-year college participation. First-term GPA was based on a 4.0 scale and was the average of grades earned in all credit-bearing courses in the first semester as calculated by the university. Credits earned in the first year reflected the cumulative credits earned by the end of the first year, including summer session if taken prior to freshman year. First-to-second-year retention, four-year graduation, and six-year graduation were dichotomous variables indicating whether the student was retained or had graduated (yes = 1, no = 0).

Detailed Plan of Analysis

Independent samples *t*-tests and chi-square analyses tested for significant differences between honors and non-honors college students in terms of gender, age, race/ethnicity, parent education, parent income, high school GPA, AP credits earned, ACT Composite score, writing placement test, first-term GPA, credits earned in the first year, first-to-second-year retention, four-year graduation, and six-year graduation. We used logistic regression to examine differences between honors college and non-honors college students simultaneously with student and family background to determine if some of these were no longer significant when examined simultaneously. We coded race/ethnicity using dummy codes where Asian American students were the reference group. To determine if participation in the honors college was associated with greater student success, hierarchical linear regression and logistic regression analyses examined success outcome variables. This approach allows for controlling of background variables to understand the unique contribution of honors college participation above and beyond effects that might be associated with other variables. Specifically, for first-term GPA and number of credits earned, we used hierarchical regression, controlling for background characteristics. Honors college participation was measured in this model by whether the student was in the honors college his or her first

semester. Predictors were entered into six blocks: block 1, age and gender; block 2, racial/ethnic background; block 3, parent income and whether or not students were first-generation students; block 4, high school background characteristics (high school GPA, number of AP credits, ACT Composite scores, and writing placement scores); and block 5, honors college participation in the first semester. We separated race/ethnicity from age and gender into different blocks so we could clearly see if race/ethnicity had a direct effect on the outcome variables. We performed independent regressions for the separate outcomes of first-term GPA and number of credits earned in the first year. For the dichotomously measured outcomes of first-to-second-year retention and four- and six-year graduation, we performed separate logistic regression analyses, but otherwise the models were similar, with background characteristics controlled.

Given that Latino/a and African American students typically have lower rates of success compared to Asian American and white students, we were interested in determining whether honors college education would help to close the achievement gap. To determine if honors college participation had a greater effect on Latino/a and African American students, as mentioned previously, we created dummy codes with Asian American students as the reference group because they had the highest overall success of the four racial/ethnic groups in the general student population. Then, we created three interaction terms by multiplying the race/ethnicity dummy code by the honor college participation variable. Similar regression analyses were conducted a second time to add these interaction terms (in block 6). By keeping these interaction terms separate from both race/ethnicity and honors college participation variables, the analysis could test whether those additional variables significantly added to the model.

To examine if more time in the honors college was associated with better student success outcomes, which was only relevant for the dependent measures of 4- and 6-year graduation, we calculated a ratio variable: the sum of the number of semesters that the student was in the honors college divided by the total number of semesters

that the student was at UIC. We created interaction terms with this ratio variable and the race/ethnicity dummy variables. Regressions tested models similar to those just explained except that (1) the ratio variable replaced the honors college participation variable in block 5, (2) the corresponding interaction terms replaced prior interaction terms in block 6, and (3) the models were used to predict only the dependent variables of four- and six-year graduation.

A third set of regression analyses using similar models with new dependent measures tested whether participation at any time in the honors college was associated with better student outcomes as measured by 4- and 6-year graduation. We created interaction terms that crossed any honors college attendance with the race/ethnicity dummy variables. Finally, we conducted additional regression analyses using models similar to those previously explained except that the honors college participation variable was replaced in block 5 and corresponding interaction terms were entered in block 6.

RESULTS

Preliminary Analyses

Preliminary analyses considering direct relations between honors college membership and each variable separately (without simultaneously controlling for other variables) provided zero-order relations and informed our choice of variables to use as controls in our main model-testing analyses presented below. Specifically, a series of χ^2 tests and *t*-tests revealed statistically significant differences between honors college and non-honors college students for gender, age, race/ethnicity, first-generation college students, parent income, high school GPA, AP credits earned, ACT Composite, first-term GPA in college, first-to-second-year retention, four-year graduation, and six-year graduation. Table 1 shows statistically significant differences in the demographic characteristics of students who were in versus not in the honors college (all p's $\leq .001$). Honors students were disproportionately more likely than non-honors students to be women. African American and Latino/a students were disproportionately not in the honors college, whereas Asian

American students were disproportionately in the honors college; White students were equally likely to be in the honors college as not. There were proportionally fewer first-generation college students among honors students than non-honors students; however, the average family income was lower for honors than non-honors students. In terms of academic preparedness for college, not surprisingly, honors students were much better prepared as reflected in significantly higher high school grades, more AP credits earned, and higher ACT scores (all p's ≤ .001). When examining honors college membership, logistic regression revealed that all these factors were significant in the statistical model. Specifically, honors college membership was predicted by being a woman, being slightly older, not being an underrepresented minority student, having a lower family income, not being a first-generation college student, having a higher high school GPA, earning more AP credits, having a higher ACT composite score, and having a higher writing placement, all significant p's ≤ .001. Finally, in terms of outcome variables, Table 1 shows that honors college students also had far greater academic success than non-honors students. As expected, they earned higher grades in their first term; earned more credits in their first year; and had higher first-to-second-year retention, four-year graduation (notably 69% versus 24%), and six-year graduation rates (85% versus 53%).

Effects of Honors College Participation Starting in the First Semester of College on Measures of Success

First-Term GPA

Our main model-testing analyses revealed that, as predicted, even after statistically controlling for student background characteristics, participation in the honors college that started during the student's first semester was positively associated with greater student success in terms of first-term GPA, first-to-second-year retention, credits earned in the first year, and graduation within four years and six years. (Final steps of models are presented in Table 2.) Specifically, we used hierarchical multiple regression to

examine the associations for first-term GPA. Age and gender were entered in the first step of the model, and gender was a significant predictor ($R^2 = .004$, $F(2, 15106) = 27.19$, $p \leq .001$), such that women earned a higher GPA than men. In the second step, race/ethnicity variables were added to the model and were significant predictors ($\Delta R^2 = .037$, $F(3, 15103) = 129.15$, $p \leq .001$), with Latino/a and African American students earning lower first-term grades than other students. In the third step, parent income and first generation in

Table 1. Means and Percentages for All Study Variables

Demographics	Honors College	Non-Honors College	X^2	*t*-test
Gender				
Male	38%	46%	48.94***	
Female	62%	54%		
Age in years	18.0	18.1		6.27***
Race/ethnicity[a]				
White	37%	37%	0.19	
African American	5%	10%	76.32***	
Asian American	39%	23%	311.30***	
Latino/a	11%	23%	184.28***	
First-generation students	21%	40%	289.81***	
Parent income	$64,461	$85,836		15.84***
High school GPA	3.52	3.12		–47.29***
AP credits earned	0.76	0.18		–65.12***
ACT composite	28.75	23.32		–47.94***
Writing placement	4.75	3.99		–62.09***
First-term GPA	3.57	2.56		–50.32***
First-year credits earned	30.06	22.45		–24.59***
First-to-second-year retention	96%	77%	475.65***	
Four-year graduation	69%	24%	1,292.61***	
Six-year graduation	85%	53%	266.81***	

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

[a] Race/ethnicity was dummy coded so that Asian American was the comparison group.

Table 2. Final Step of Hierarchical and Logistic Regression for Variables Honors College Participation in First Term

	First-Term GPA[b]			First-Year Credits Earned		
Predictors	B	SE(B)	β	B	SE(B)	β
(Constant)	0.24	0.29		10.32	2.89	
Age	−0.01	0.02	−0.01	−0.32	0.15	−0.02*
Gender (Male = 0)	0.08	0.01	0.04***	0.44	0.15	0.02***
Race/ethnicity[a]						
African American	−0.26	0.03	−0.08***	−3.78	0.28	−0.12***
White	0.10	0.02	0.05***	−0.76	0.18	−0.04***
Latino/a	−0.09	0.02	−0.04***	−2.98	0.21	−0.13***
Parent income	0.00	0.00	0.03***	0.00	0.00	0.01
First generation in college	−0.09	0.02	−0.04***	−0.83	0.16	−0.04***
High school GPA	0.68	0.02	0.29***	4.52	0.18	0.21***
AP credits earned	0.27	0.02	0.13***	1.95	0.18	0.10***
ACT composite	0.01	0.00	0.04***	0.16	0.03	0.06***
Writing placement	0.05	0.01	0.03***	0.26	0.12	0.02*
Honors college first term	0.19	0.04	0.06***	1.68	0.38	0.05***
Honors × African American	0.37	0.11	0.03***	4.49	1.08	0.03***
Honors × White	0.00	0.05	0.00	0.52	0.52	0.01
Honors × Latino/a	0.14	0.08	0.02†	2.52	0.77	0.03***
Total R^2			0.21			0.16
n			15,109			15,109

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$, †$p \leq .06$

[a] Race/ethnicity was dummy coded so that Asian American was the comparison group.

[b] The analysis included different cohorts of students for each outcome variable: First-Term GPA (started between (started 2006–2012, inclusive), 4-Year Graduation (started 2006–2009, inclusive), and 6-Year Graduation (started

Predicting College Success Using Five Different Outcome Variables and

1st- to 2nd-Year Retention			4-Year Graduation			6-Year Graduation		
B	SE(B)	Odds Ratio (e^{β})	B	SE(B)	Odds Ratio (e^{β})	B	SE(B)	Odds Ratio (e^{β})
−0.17	0.90	0.85	−2.82	1.13	0.06**	−1.32	1.39	0.27
0.00	0.05	1.00	−0.15	0.06	0.86**	−0.07	0.07	0.93
−0.05	0.04	0.95	0.34	0.05	1.41***	−0.09	0.07	0.91
−0.53	0.08	0.59***	−0.48	0.11	0.62***	−0.46	0.13	0.63***
−0.43	0.06	0.65***	0.13	0.07	1.14 †	−0.08	0.09	0.92
−0.49	0.07	0.61***	−0.48	0.09	0.62***	−0.22	0.11	0.80*
0.00	0.00	1.00	0.00	0.00	1.00***	0.00	0.00	1.00
−0.10	0.05	0.91*	−0.10	0.06	0.90	−0.10	0.07	0.90
0.73	0.05	2.08***	0.95	0.07	2.60***	0.91	0.09	2.48***
0.68	0.06	1.98***	0.80	0.06	2.22***	0.69	0.09	1.99***
0.00	0.01	1.00	0.01	0.01	1.01	0.00	0.01	1.00
−0.07	0.04	0.94	0.17	0.05	1.19***	0.02	0.06	1.02
0.62	0.19	1.87***	0.79	0.14	2.20***	0.68	0.27	1.98*
0.78	0.55	2.18	0.37	0.40	1.45	−0.44	0.65	0.64
−0.28	0.24	0.76	−0.11	0.20	0.89	−0.71	0.34	0.49*
−0.22	0.32	0.80	0.02	0.31	1.02	−0.22	0.73	0.81
		0.09			0.22			0.11
		15,109			9,200			4,055

2006 and 2012, inclusive), First-Year Credits Earned (started between 2006 and 2012), 1st- to 2nd-Year Retention 2006–2007, inclusive).

college were added and were significant (ΔR^2 = .009, F(2, 15101) = 112.68, $p \leq .001$), such that students with higher parent income and who were not first generation earned higher grades than others. In the fourth step, high school background characteristics (high school GPA, number of AP credits earned, ACT Composite scores, writing placement) were positively associated with first-term grades (ΔR^2 = .156, F(4, 15097) = 354.37, $p \leq .001$). In the fifth step, honors college participation was added and had a statistically significant effect (ΔR^2 = .004, F(1, 15096) = 331.93, $p \leq .001$)—even after accounting for the variance associated with the other variables—with honors participation being associated with higher grades. In the sixth step, the interaction terms between race/ethnicity and honors college participation were added, and the interaction term for African American was significant (β = .03; ΔR^2 = .001, F(1, 15093) = 266.74, $p \leq .001$, total R^2 = .21), indicating that the statistical effect of honors involvement was larger for African American students compared to Asian American students. The positive effect of honors college involvement in the first term was larger for African American students when compared to Asian American students. African American students in the honors college their first semester saw a 0.37 increase in first-semester GPA compared to African American students not in the honors college.

First-Year Credits Earned

We used the same analytic approach (with the same variables entered in the same steps) for the different dependent measure of credits earned during the first year. A similar pattern of findings emerged (see Table 2 for the final step of hierarchical multiple regression analysis) with two exceptions: (1) parent income was not significantly associated with first-year credits earned, and (2) in the final step, both the interaction between honors participation and Latino/a student ethnicity and the interaction of honors participation and African American race were statistically significant (F (1, 15093) = 190.95, $p \leq .001$, total R^2 = .16). That is, the positive effect of honors college involvement was significantly larger for Latino/a students as well as for African American students compared to

Asian American students. African American students in the honors college their first semester, on average, earned 4.49 more credits in the first year compared to African American students who were not in the honors college, while Latino/a students earned 2.52 more credits in their first year when compared to Latino/a students not in the honors college.

Retention and Graduation

We used logistic regression to examine the association of honors college participation on first-to-second-year retention, four-year graduation, and six-year graduation (Table 2). For all three, honors involvement was statistically significant: students who participated in the honors college had a higher likelihood (almost two times more likely) of persisting to the sophomore year (odds ratio [OR] = 1.87), and of graduating at four (OR = 2.20) and six years (OR = 1.98), even after accounting for the other factors included in the model. In addition, high school GPA and AP credits earned, as well as some race/ethnicity variables, were also significantly associated with retention and four- and six-year graduation. The interaction terms between racial/ethnic groups and honors college participation were largely not significant, as was ACT composite score, indicating that these were not statistically associated with retention and graduation. Analyses testing the model predicting four-year graduation revealed that some additional variables were significantly related, including age (younger students were more likely to graduate within four years than older students), gender (women were more likely to graduate within four years than men), parent income (students with higher parent income were more likely to graduate within four years than students with lower parent income), and writing placement (those with higher scores were more likely to graduate within four years than those with lower scores). But these variables were not significantly associated with retention nor six-year graduation.

Effects of Proportion of Time Spent in the Honors College on Measures of Success

The next series of logistic regression analyses tested a similar model that had the same steps as above, but this series used as the main predictor variable the proportion of time that each student spent in the honors college (instead of the independent variable of whether students had entered the honors college in their first year). For both four- and six-year graduation, increased time in the honors college was associated with greater likelihood of graduation (Table 3). Students who were in the honors college for a greater proportion of their time in college were four times more likely to graduate within four years (OR = 4.10) and almost three times more likely to graduate within six years (OR = 2.83). No interaction terms were significant in either analysis. Control variables in this model followed the same pattern as reported above for analyses using honors college participation defined as college membership starting in the first term of college.

Effects of Honors College Participation at Any Point on Measures of Success

In the next analyses, we used logistic regression to determine if honors college membership at any time during a student's college tenure affected four- and six-year graduation (Table 4). Honors students were significantly more likely—three times more likely—to graduate within four years than non-honors students (OR = 3.10). No interaction terms were statistically significant. Other control variables in this model followed the same pattern for four-year graduation as reported above when the honors college variable was defined as participation starting in the first term of college.

A similar logistic regression also revealed that students who were in the honors college at any time during college were three times more likely to graduate within six years than those who were not in the honors college (OR = 3.29). No interaction terms were statistically significant. Again, the other variables in this model followed the same pattern for six-year graduation as when the honors

college variable was defined as participation starting in the first semester.

DISCUSSION

Without question honors college students are more successful than non-honors students. Some critics have argued that the enhanced success of honors students is not due to honors education per se, but instead due to the preexisting characteristics of honors students themselves: they are better prepared and socioeconomically advantaged, they have higher entering standardized test scores, and they are more likely to be white or Asian. On the contrary, our analyses show that such an explanation, which leaves little justification for supporting honors colleges and programs on university campuses, is not accurate. Indeed, this study shows that honors education has a statistically significant positive effect on student success above and beyond all other background characteristics studied, including prior academic preparation (e.g., as reflected in high school grades, writing class placement, and ACT scores) and student and parent demographics (e.g., first generation in college). This was true for success defined five different ways: grades earned in the first semester, credits earned in the first year, first-to-second-year retention, 4-year graduation, and 6-year graduation. Furthermore, and of great importance in a nation where a significant gap in the success of underrepresented students versus others exists, we found that the positive effects of honors college membership were more pronounced for African American and Latino/a students for some indicators of success.

Although our goal was not to identify the specific components of honors programs that increase academic success, theoretically, the explanation might lie in the centerpiece of honors education: the many academically and socioemotionally supportive practices. These include high-impact practices such as small interactive classes, first-year seminars, service activity requirements, and capstone research requirements; all of these practices help students engage more with college, their peers, and their professors (Inkelas and Weisman 2003; Freeman et al. 2007; Kuh 2008; Mayhew et al.

Table 3. Logistic Regression for Variables Predicting College Success Using Two Different Outcome Variables and Ratio of Terms Spent in Honors College Divided by Total Terms in the University

	4-Year Graduation[b]			Six-Year Graduation		
Predictors	B	SE(B)	Odds Ratio (e^{β})	B	SE(B)	Odds Ratio (e^{β})
(Constant)	−2.64	1.13	0.07*	−1.21	1.39	0.30
Age	−0.14	0.06	0.87*	−0.06	0.07	0.94
Gender (Male = 0)	0.34	0.06	1.40***	−0.10	0.07	0.91
Race/ethnicity [a]						
African American	−0.49	0.12	0.61***	−0.46	0.13	0.63***
White	0.15	0.07	1.16*	−0.07	0.09	0.94
Latino/a	−0.47	0.09	0.62***	−0.21	0.11	0.81 †
Parent income	0.00	0.00	1.00***	0.00	0.00	1.00
First generation in college	−0.07	0.06	0.93	−0.09	0.07	0.92
High school GPA	0.86	0.07	2.36***	0.86	0.09	2.37***
AP credits earned	0.73	0.06	2.08***	0.65	0.09	1.92***
ACT composite	0.01	0.01	1.01	−0.01	0.01	0.99
Writing placement	0.15	0.05	1.17***	0.01	0.06	1.01
Honors college ratio	1.41	0.17	4.10***	1.04	0.30	2.83***
Honors ratio × African American	0.11	0.40	1.12	−0.56	0.59	0.57

Honors ratio × White	−0.30	0.21	0.74	−0.72	0.36	0.49
Honors ratio × Latino/a	0.00	0.33	1.00	−0.09	0.70	0.91
Total R^2			0.24			0.13
n			9,200			4,055

$^{***}p \leq .001$, $^{**}p \leq .01$, $^{*}p \leq .05$, $^{\dagger}p \leq .06$

[a] Race/ethnicity was dummy coded so that Asian American was the comparison group.

[b] The analysis included different first-year cohorts of students for each outcome variable: 4-Year Graduation (started 2006–2009, inclusive), and 6-Year Graduation (started between 2006–2007, inclusive).

Table 4. Logistic Regression for Variables Predicting College Success Using Two Different Outcome Variables and Any Honors College Participation (Not Only First Semester)

	4-Year Graduation [b]			Six-Year Graduation		
Predictors	B	SE(B)	Odds Ratio (e^{β})	B	SE(B)	Odds Ratio (e^{β})
(Constant)	−2.47	1.14	0.08*	−0.88	1.40	0.41
Age	−0.14	0.06	0.87*	−0.06	0.07	0.94
Gender (Male = 0)	0.33	0.06	1.39***	−0.11	0.07	0.90
Race/ethnicity [a]						
African American	−0.50	0.12	0.61***	−0.45	0.13	0.64***
White	0.13	0.07	1.14†	−0.07	0.09	0.93
Latino/a	−0.48	0.09	0.62***	−0.22	0.11	0.80*
Parent income	0.00	0.00	1.00***	0.00	0.00	1.00
First generation in college	−0.06	0.06	0.94	−0.08	0.08	0.93
High school GPA	0.01	0.01	1.01	0.81	0.09	2.24***
AP credits earned	0.85	0.07	2.33***	0.61	0.09	1.85***
ACT composite	0.74	0.06	2.09***	−0.01	0.01	0.99
Writing placement	0.15	0.05	1.16***	0.00	0.06	1.00
Any honors college participation	1.13	0.12	3.10***	1.19	0.23	3.29***
Honors × African American	0.22	0.31	1.25	−0.64	0.51	0.53

Honors × White	0.08	0.17	1.08	−0.35	0.30	0.71
Honors × Latino/a	0.11	0.25	1.12	0.58	0.66	1.79
Total R^2			0.25			0.13
n			9,200			4,055

$^{***}p \leq .001$, $^{**}p \leq .01$, $^{*}p \leq .05$, $^{\dagger}p \leq .06$

[a] Race/ethnicity was dummy coded so that Asian American was the comparison group.

[b] The analysis included different first-year cohorts of students for each outcome variable: 4-Year Graduation (started 2006–2009, inclusive), and 6-Year Graduation (started between 2006–2007, inclusive).

2016). For example, this particular university honors college has a mandatory honors freshman seminar, which focuses on campus resources and engagement, and required first-year core seminars, both of which help build relationships between students and faculty and advisors. In turn, these enhanced relationships might help students feel an increased sense of belonging—an important component of academic mindsets, which is strongly associated with academic achievement in college and persistence to the second year (Han, Farruggia, and Moss 2017; Walton and Cohen 2011). Other honors experiences (e.g., community projects, student organizations, and leadership) also promote more engagement and probably more perceived support and belonging.

One could argue that there are additional individual differences between honors and non-honors students that we did not account for. For example, Seifert et al. (2007) found that students who participate in an honors program had increased critical thinking skills, skills in mathematics, and composite cognitive development, and Scager et al. (2012) found that honors students had more desire to learn, drive to excel, and creativity compared to non-honors peers. Perhaps honors college students are more inherently motivated, both to apply to and gain admission to college and to study and be successful once there. While no study can control for everything, future studies should certainly include such variables. Even so, there are several good reasons for not expecting such potential differences to explain our effects. For example, students' high school grades were statistically controlled, and grades reflect a strong motivational component. Of even more importance, although honors college participation at any point in the students' college careers led to a higher chance of graduating in four or six years, the more time students spent in this honors college, the more successful they were in terms of the likelihood of graduating. This would not be true if the honors college programs and resources, which included required honors activities each semester, were not at least partially responsible for the increased success. Thus, we have confidence that the background characteristics we included are reasonable proxies for a host of factors, such as those considered in holistic admissions

processes, that, when controlled, help us to better understand the unique association between honors participation and college success.

It is interesting that the impact of honors college participation is stronger for indicators of persistence in college (retention and graduation—arguably the most important variables we studied) rather than academic performance as measured by first-term GPA and first-year credits earned. (Statistically, this is indicated by the relatively small, but statistically significant and consistent, β's and small amounts of variance explained for performance, but larger Exp β's for retention.) The types of support provided by the honors college may help students manage barriers to college graduation more so than the barriers to academic performance in college. This interpretation is logical, given that honors college students are generally highly academically prepared, but they will still face other challenges that all students face, such as economic barriers and developing social relationships.

The statistically significant interactions between racial/ethnic background and honors college membership are particularly interesting and important. Honors involvement was beneficial for all students, but it was especially important for African American students in terms of first-term GPA, and for African American and Latino/a students in terms of number of first-year credits earned. Seifert et al. (2007) found a similar effect regarding first-year outcomes, but failed to examine long-term outcomes, such as graduation, as we did. As previous research has indicated, regardless of honors involvement, racial and ethnic minority students, compared to White students, tend to engage less with faculty (Anaya and Cole 2001) and to have less access to resources including money for tuition (Bastedo and Gumport 2003). Honors programs provide such resources—more opportunities for faculty engagement, more resources that help academically, and often more scholarships—all of which are needed more by underrepresented students as a group than by other students. Thus, underrepresented students benefit even more than others from an honors college. Given the significant achievement gap between underrepresented and majority students

in this country, it would have been encouraging in this study simply to see equivalence in the effects—our finding of greater impact for African American and Latino/a students is truly important in a meaningful, practical sense.

CONCLUSIONS AND FUTURE DIRECTIONS

This research documents the positive association between honors education and student success over and above other factors, and it demonstrates that honors education is even more beneficial for underrepresented minority students than for some other students. Honors programs are campus models for undergraduate success programming, not simply unneeded extra resources for students who already have a competitive advantage.

Future research could expand the definition of student success to include elements such as lifelong learning, later-life civic engagement, graduate and professional school matriculation and success, or career development, and it could begin to tease apart the various features of the honors experience that contribute most to student success, with qualitative and quantitative methods. Future research should also continue to identify factors that explain student success of both honors and non-honors students. We have identified one important piece of the complex, multiply determined puzzle, but more research is needed to expand the growing evidence converging on a complete answer to the question of what makes students successful.

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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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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 EKU 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 EKU 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, EKU 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 EKU students come from EKU's traditional service region. Roughly half of EKU 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 EKU students identify as first-generation college attendees.

The EKU 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 EKU 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 EKU 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 EKU Honors Program experience, two groups were examined. The first consists of students who began in the EKU 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 EKU 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 EKU. 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 EKU: 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 EKU 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 EKU 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 EKU 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 EKU Honors Program from 2010 to 2015, matriculated to EKU, 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 EKU 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 (EKU *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 EKU 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 EKU 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

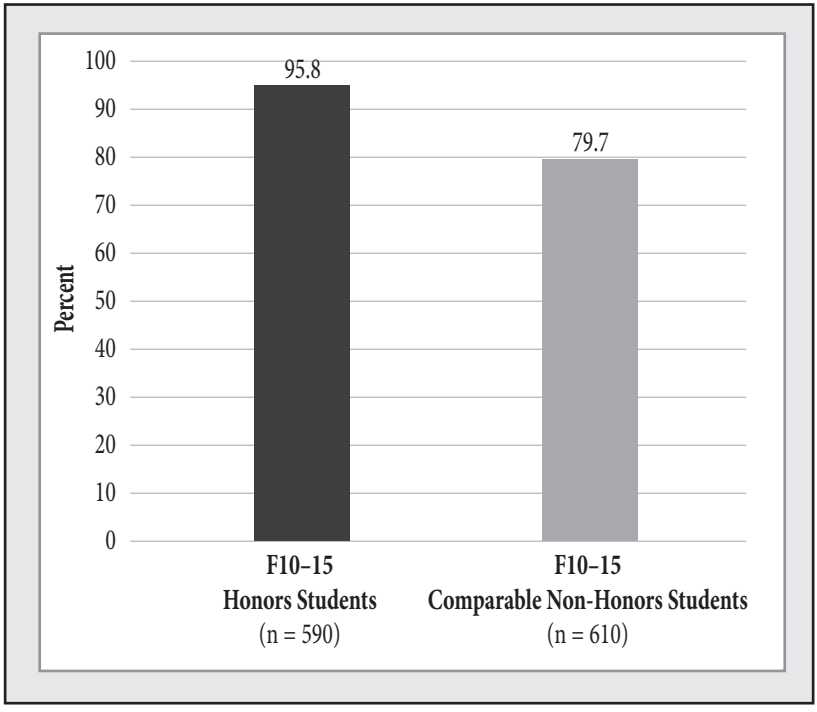
Honors vs. Comparable Non-Honors Second-Year Retention

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 EKU for the start of their second year. Only 486 (79.7%) of the 610 comparable non-honors students returned to EKU, 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

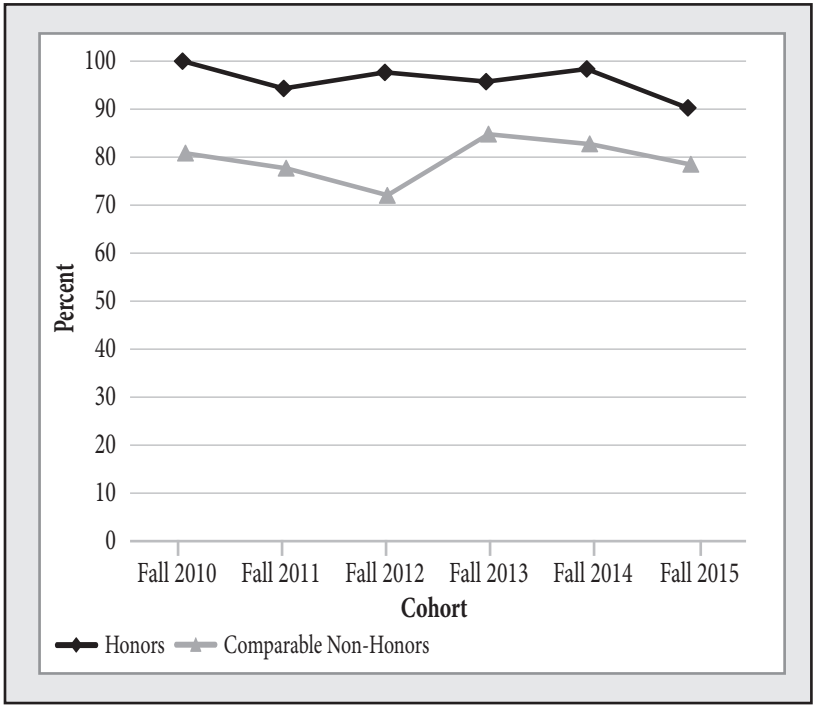


used a confidence level of 99.17 percent for each interval based on a Bonferroni correction (1 – .05 ÷ 6 ≈ .9917). The Bonferroni correction accounts for the fact that multiple comparisons have been made (Weisstein n.d.). Only one of the six confidence intervals contains the corresponding honors retention 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. EKU 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 EKU. 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 EKU, 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 EKU 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 EKU 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. EKU Four-Year and Five-Year Graduation Rates for Honors vs. Comparable Non-Honors Students for Fall 2010–Fall 2012 Incoming First-Year Students

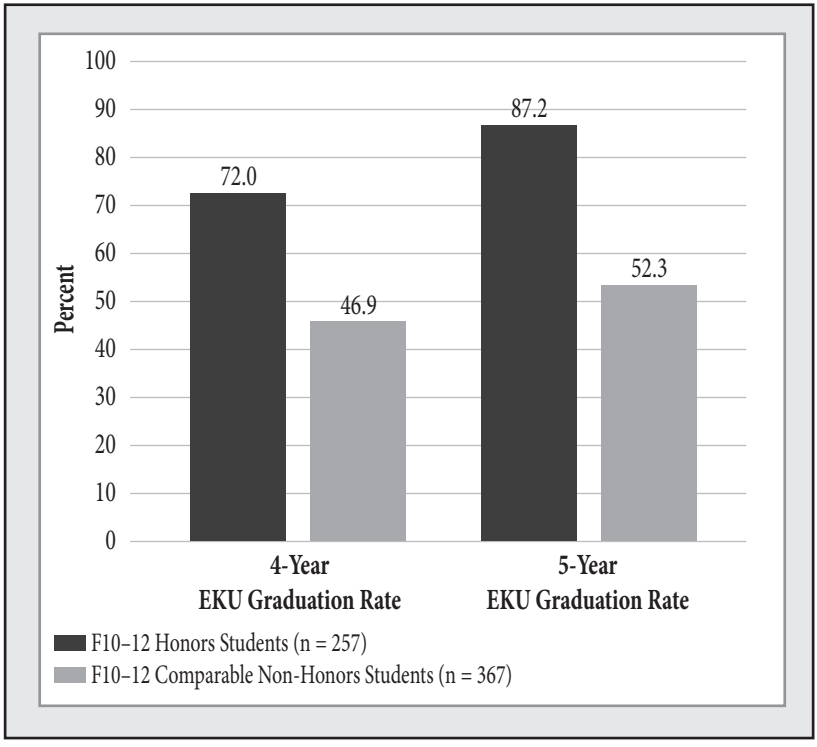


Figure 4. EKU Four-Year Graduation Rates for Honors vs. Comparable Non-Honors Students for Fall 2010–Fall 2013 Incoming First-Year Students

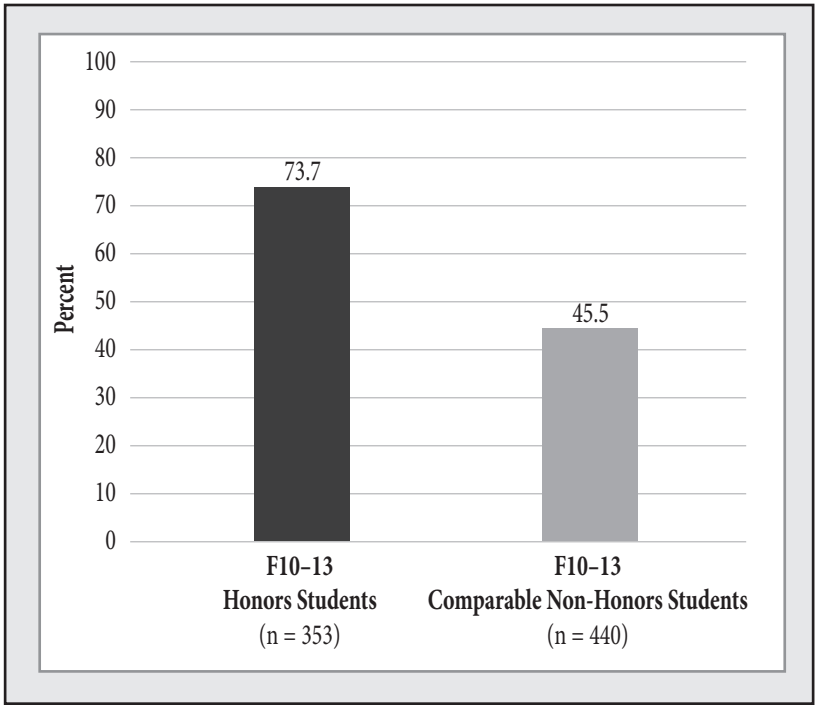


Table 2. Comparison of EKU Honors Five-Year Graduation Rates with Confidence Intervals for Comparable Non-Honors Five-Year Graduation Rates for Fall 2010–Fall 2012

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 ÷ 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 EKU, graduating

Table 3. Comparison of EKU 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 EKU non-honors students (overall $\alpha = .05$). The confidence level of 98.75% is based on a Bonferroni correction (1 – .05 ÷ 4 = .9875).

as an honors scholar, and graduating from EKU 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 EKU, a gap of only 5 percentage points. It is worth noting, however, that 100 percent of highly involved honors students were retained at EKU 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 EKU. Highly involved students graduated as EKU 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).

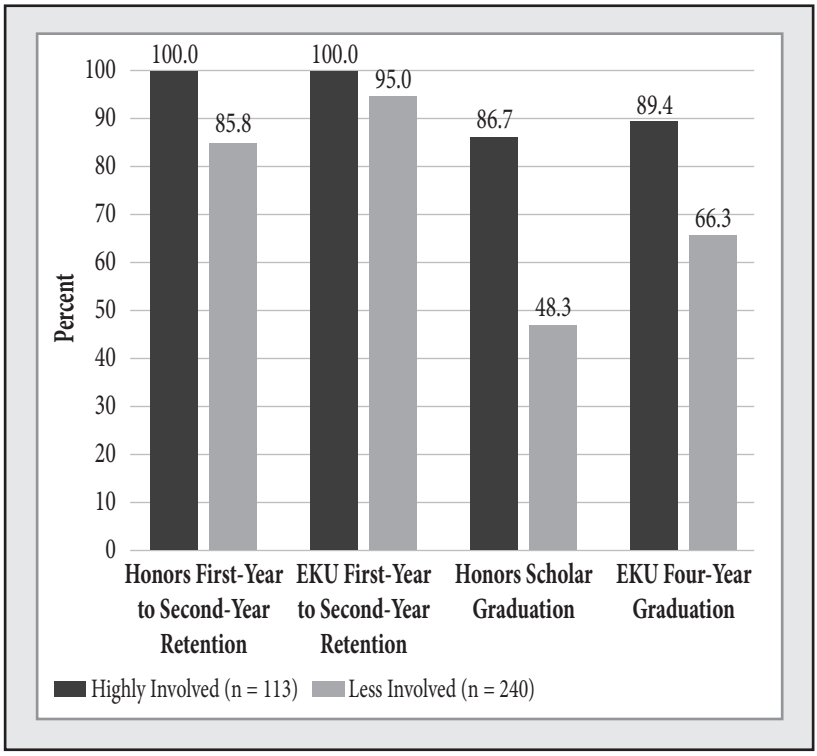
In order to consider five-year graduation rates, we removed the fall 2013 cohort from the analysis and present those results in Figure 6. A total of 257 students make up the fall 2010–fall 2012 cohorts, with 83 highly involved honors students and 174 less involved honors students. Again, highly involved honors students had a 100 percent second-year retention rate, both within the honors program and at EKU, 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 EKU 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

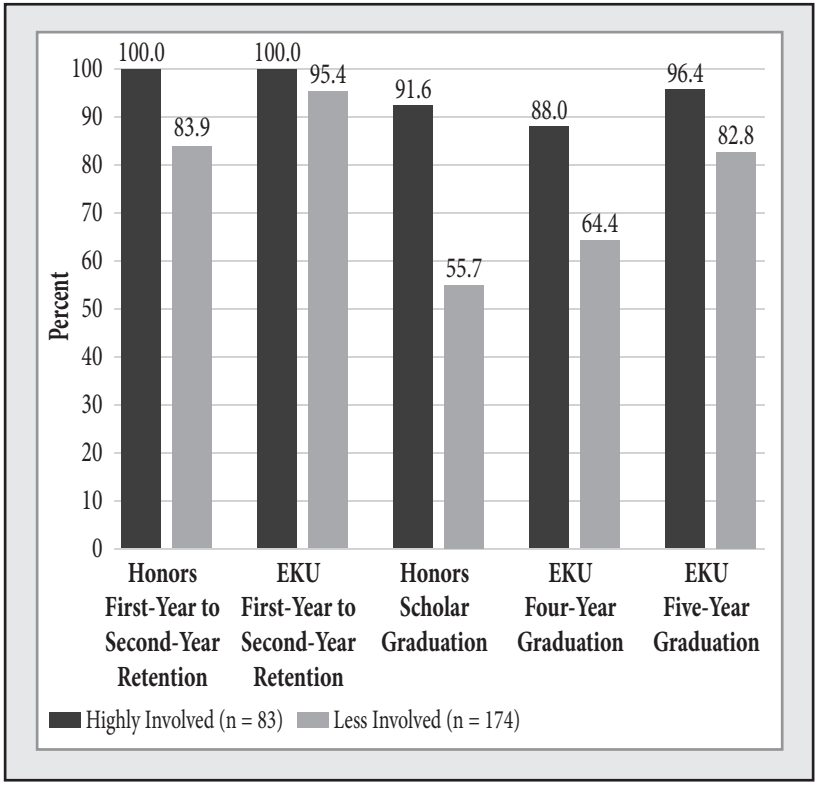
Analyzing these groups leads to some key points of discussion on the value added of participating in the EKU Honors Program, as well as involvement in some of the high-impact practices the program provides. Typically, honors program participants lead the overall university population in retention and 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 EKU 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 EKU 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 EKU 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 EKU 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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GPA as a Product, Not a Measure, of Success in Honors

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BACKGROUND

Success and Equity

Defining success is challenging. Yet schools and colleges across the country, indeed, around the world, seek to do it in order to demonstrate value. While we know that success depends upon a variety of skills that individuals develop into competencies, these can be difficult to measure in an academic setting. For example, as educators, we hope that success is an outcome of lifelong learning, but the measurement of lifelong learning requires sophisticated approaches that can be difficult to deploy across a broad

population (Riley and Claris 2008). As a result, administrators and instructors will often gravitate toward more readily available measures of success such as individual grades, grade point averages (GPAs), or standardized test scores. While these measures can provide insight into performance in a particular setting, commonly a didactic instructional environment, they do not account for the variety of experiences that mold and shape an individual's capacity for success. In fact, some educators might argue that these limited measures ignore some of the most important aspects of potential for success, such as, for example, resilience.

One illustration of the lack of insight into student learning that grades are capable of providing can be found in the early development of the Force Concept Inventory (Halloun and Hestenes 1985). This test is designed to determine how students understand motion and is typically employed to pretest this knowledge so that an instructor can tailor a class to meet the needs of the enrolled students. During the development of this test, it was administered to 600 introductory physics students both before and after taking an introductory college physics course. Halloun and Hestenes (1985) found that students who received an A in the course were equally likely to have changed their understanding of motion after taking the course as students who received a C in the course. Thus, the students who earned an A did not necessarily understand motion better, but they were simply better at memorizing equations and plugging in values to get appropriate answers. The grade of A did not reflect their actual learning of the physical concepts, their knowledge, or their ability to apply this knowledge.

College admissions programs commonly use high school GPA and standardized tests such as ACT and SAT to predict success in making admission decisions, but several studies show these to be, at best, moderate predictors of college GPA and retention (Anastasi 1963; Daugherty and Lane 1999; DeBerard, Spielmans, and Julka 2004; Galicki and McEwen 1989; Wolfe and Johnson 1995). In terms of equity, the work of Banerji (2006) and others (National Research Council 1999) shows that standardized tests are biased against underrepresented minority and low socio-economic status populations. Thus, any effort to base admission on such a

test biases the admission standards against these groups. Interestingly, in a study of approximately 34,000 students from 30 colleges across the United States, Kobrin and Michel (2006) found that neither the SAT nor the high school GPA were definitively predictive of the first-year college GPA. Most studies of this nature explore the potential correlation between GPAs or test scores at two different times, spanning high school and college. While this can be instructive, we posit that college GPA remains a limited measure of a certain type of success and that this measure is not necessarily predictive of success in postgraduate endeavors.

Weerheijm and Weerheijm (2012) provide a compelling argument for the establishment of competency-based admission and performance standards that lead to the development of "excellent and successful professionals" (p. 229). In their survey of honors programs administered in a non-graded environment, they identify three key factors that are most likely to produce "professional excellence" in graduates: personal characteristics, motivation, and study environment (239). Personal characteristics include intelligence, creative thinking, openness to experience, desire to learn, drive to excel, and persistence. They suggest that honors admission programs consider evidence of these factors as criteria for admission. Motivation is perceived as a long-term construct: students who set long-term mastery goals for themselves are more likely to achieve educational success than students setting short-term performance goals. Fostering the development of these characteristics and motivation requires an environment that makes explicit the relevance of college learning to the workplace. Complementing this work, Mould and DeLoach (2017) encourage honors programs to identify program-specific measures of success that will lead to the identification of assessment tools aligned more directly with those measures.

Honors programs provide a crucial opportunity for addressing equity in higher education. Astin (2016) suggests that the American system of higher education inherently provides differential opportunities to students with differing levels of academic preparation. He blames this inequity on higher education's fascination with grades and standardized tests and the use of these metrics as

gatekeepers for access. By extension, limiting participation in honors experiences in higher education to those with a high GPA or test score further disadvantages those who enter higher education at an already accumulated disadvantage. According to Kuh (2008) and Finley and McNair (2013), these are the very students who benefit the most from these types of engaging and productive experiences in college. Using NSSE data, Kuh revealed a generally positive relationship between high-impact or engaged experiences, the types of experiences often offered through honors programs, and measures of student learning and achievement. Interestingly, he found these effects were more pronounced for minority students and students with relatively low ACT scores. His results point to benefits of participation in these high-impact practices for all students, but especially for students from groups historically underrepresented in higher education and those least likely to have the opportunity to engage in them.

A LIBERAL EDUCATION APPROACH TO STEM EDUCATION

Michigan Technological University is a STEM-focused institution where 95 percent of undergraduate students pursue degrees in a science, technology, engineering, or mathematics field. While STEM education is increasingly viewed as the solution for our nation's economic decline (Olson and Riordan 2012) and our world's most pressing social and environmental challenges (Beatty, Greenwood, and Linn 1999), considering how STEM education prepares undergraduates for the 21st century is important. In this rapidly changing world, we must cultivate the skills that will drive success and satisfaction: integrating knowledge across contexts, lifelong learning, intercultural effectiveness, and leadership.

Common contemporary models of STEM undergraduate education focus on the delivery of content and assessment of learning via individual learning outcomes associated with specific products of the course environment (Olson and Riordan 2012). In some cases, schools and colleges reach beyond this environment to incorporate other learning or co-curricular contexts and assessment methods such as qualitative evaluation; however, adoption of these methods

is not widespread, and both program management and assessment can be time-consuming and costly (Sheppard, Macatangay, Colby, and Sullivan 2009). In addition, several high-profile STEM educators have called for the integration of liberal arts and STEM education, citing this integration as essential to the development of a competitive STEM workforce (e.g., the Annual Engineering and Liberal Education Symposium at Union College).

The Wabash National Study of Liberal Arts Education describes seven liberal arts learning outcomes commonly associated with the development of wisdom and the responsibilities of citizenship: (1) integration of learning, (2) inclination to inquire and lifelong learning, (3) effective reasoning and problem solving, (4) moral character, (5) intercultural effectiveness, (6) leadership, and (7) well-being (King, Brown, Lindsay, and VanHecke 2007). Strikingly, these seven outcomes are interdependent, each contributing to the holistic development of the individual. Furthermore, each outcome is viewed as multidimensional: the achievement of each outcome requires integration of abilities across cognitive (what and how one knows), intrapersonal (who one is and one's sense of identity), and interpersonal (how one relates with others) domains. For instance, consider how problem solving and leadership skills relate to each other and how both of these skill sets require maturity in intrapersonal and interpersonal domains as well as the cognitive domain.

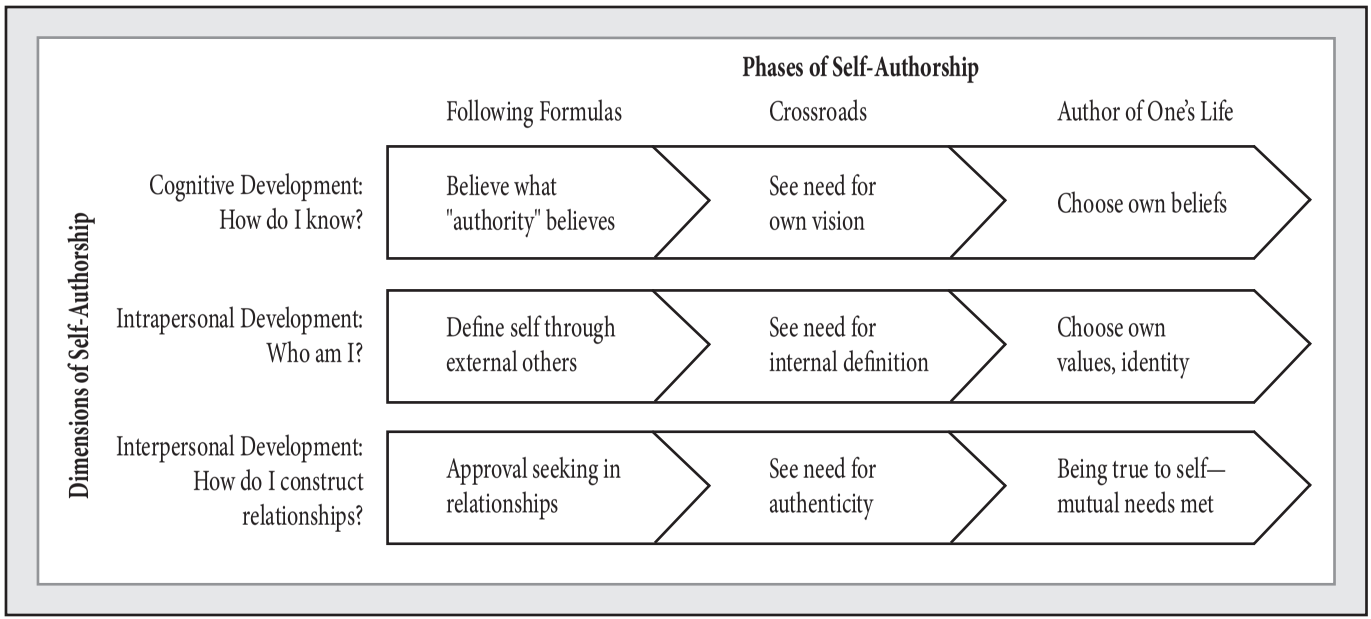
The concurrent development of students across cognitive, intrapersonal, and interpersonal domains is described by the theory of self-authorship. Baxter Magolda (2008) provides a succinct description of self-authorship as "the internal capacity for an individual to define one's beliefs, identity and social relations" (p. 269). This theory is rooted in the work of Kegan (1994), who argues that this development provides a necessary foundation for individuals to meet the expectations of adulthood. Baxter Magolda's 21-year longitudinal study of young adults age 18 to 39 supports this claim (Baxter Magolda 2001). In this study, she found that participants' roles and responsibilities required them to analyze data, explore and evaluate diverse perspectives, understand context and others' frames of reference, and negotiate competing interests. Each

of these steps is useful for weighing alternatives and arriving at a judgment. Executing these tasks requires self-authorship to ensure that individuals are not overwhelmed by external influence, are confident in their ability to make defensible decisions, and are able to collaborate productively with colleagues.

Specific examples of the need for self-authorship abound in society. For instance, in today's global/social context, adults engage collaboratively with multiple diverse others. The development of productive relationships requires intercultural maturity, which depends on cognitive, intrapersonal, and interpersonal development. According to a 2007 report by the Association of American Colleges and Universities (AAC&U), industry increasingly expects higher education to encourage this development in undergraduate students, stressing teamwork, intercultural competence, and a greater emphasis on complex problem solving (AAC&U 2007). Indeed, higher education itself emphasizes social responsibility as a key outcome for addressing the challenges of the 21st century.

Self-authorship requires the individual to shift from being uncritically dependent on external authorities for values, beliefs, identities, and loyalties to defining these elements internally. Individuals develop self-authorship when they are encouraged to construct and explain their views in learning environments that provide opportunities to explore alternative interpretations and that are emotionally supportive of the challenges of the knowledge-construction process (Baxter Magolda 2001; Kegan 1994; Pizzolato 2005). Figure 1 presents a diagram of the levels of self-authorship. In the movement from "Following Formulas" to entering the "Crossroads," individuals begin to experience and respond to tensions associated with continued reliance on external formulas as a means of defining themselves, their relationships, and their beliefs. As individuals move into the crossroads, they more openly question external authorities and begin to construct, listen to, and cultivate their internal voice. Once self-authored and ultimately internally defined, individuals trust the internal voice; build upon that foundation; and become secure in their identities, relationships, and beliefs. It is important to note that the development of self-authorship is not a linear experience and that the course of development

Figure 1. Developmental Stages of Self-Authorship



Note: Based on work presented by Baxter Magolda (2001).

rarely unfolds smoothly from one level or way of making meaning to the next. Rather, the developmental trajectory is punctuated with meanders, sprints, and setbacks. Nevertheless, identifiable milestones do exist.

Without an intentional intervention, most undergraduate students—and even college graduates—define themselves through external formulas rather than self-authoring their beliefs (Baxter Magolda 1992, 2001; Baxter Magolda, King, Taylor, and Wakefield 2012; Belenky, Clinchy, Goldberger, and Tarule 1986; Kegan 1994; King and Kitchener 1994; King and Mayhew 2002). Evidence shows, however, that with appropriate support this tendency can be changed. Several types of experiences produce higher degrees of self-authorship among undergraduates (King, Baxter Magolda, Barber, Brown, and Lindsay 2009; Barber, King, and Baxter Magolda 2013). These include experiencing dissonance in academic settings, being challenged to evaluate knowledge claims and take ownership of beliefs, encountering diverse perspectives, and addressing tragedy or complex personal relationships. Also essential is the identification of a community of support where processing of these challenging experiences occurs. Unfortunately, this demand often occurs post-graduation, leaving individuals to face significant challenges with insufficient preparation and potential risk to themselves, the people around them, and the organizations and systems they are trying to improve (Flores, Matkin, Burbach, Quinn, and Harding 2012). To foster the growth of self-authorship in an academic setting, a supportive environment can be created through what Hodge, Baxter Magolda, and Haynes (2009) refer to as the "Learning Partnership Model."

LEARNING PARTNERSHIP MODEL

Designed as a practical approach to transform both curricular and co-curricular learning, the learning partnership model (Baxter Magolda and King 2004) grows out of the theory of self-authorship. To empower individuals to explore the complex landscape of knowledge, identities, and relationships, the learning partnership model incorporates three key principles:

1. *Validating learners as knowers*. Ensure that students know their voices are important and encourage them to share ideas and viewpoints while muting the voice of faculty as "the" authority, thus helping students to see the instructor as human, approachable, and concerned;

2. *Situating learning in learners' own experience*. Recognize and acknowledge that students bring their personal experiences into the classroom, explain the relevance of material to students' daily lives, avoid marginalizing students, and provide opportunities for self-reflection to help students become clearer about what they know, why they hold their beliefs, and how they want to act on them; and

3. *Defining learning as mutually constructing meaning*. Frame learning as something experienced together when both the instructor and the student share perspectives; students see that the instructor is continuing to learn through their work together and demonstrates lifelong learning.

The key to a successful learning partnership is the balance of challenge and support necessary to push students toward self-authorship without triggering a reliance on old ways of constructing identity, relationships, and knowledge. Educators and administrators have used this model to design effective learning partnerships for learners in many situations, such as orientation programs, undergraduate courses, and internships. (Detailed examples can be found in Taylor, Baxter Magolda, and Haynes 2010; however, there is little evidence that this model is used much in the undergraduate STEM educational setting.)

THE PAVLIS HONORS COLLEGE EDUCATIONAL FRAMEWORK

The educational framework of the Pavlis Honors College at Michigan Technological University is designed to encourage the development of self-authorship by exposing students to a challenging educational setting in a supportive learning environment. As students encounter and traverse the crossroads, the framework

reflects the levels of self-authorship that students should encounter, as well as the learning partnership necessary for this development. The Pavlis Honors College (PHC) framework is an adaptation of that proposed by Taylor and Haynes (2008) for the honors college at Miami University of Ohio. The framework articulates incoming student traits, developmental goals, student learning outcomes, faculty and staff expectations for engaging with students, and identification of learning experiences where development is enabled. Table 1 summarizes the current framework for the first year of the program (year two for a traditionally enrolled college student).

The program structure follows a tiered model of educational development associated with both the cognitive and affective domains of Bloom's taxonomy (Bloom, Engelhart, Furst, Hill, and Krathwohl 1956; Krathwohl, Bloom, and Masia 1973) and the self-authorship theory described above. The program integrates Baxter Magolda and King's (2004) learning partnership model across three major elements: (1) a series of developmental seminars, (2) a set of required co-curricular activities with structured reflection, and (3) advising support. These elements provide opportunities for students to foster self-authorship: increasingly complex ways of making meaning about one's identity, relationships, and beliefs. Students collaborate with faculty during seminars to explore concepts related to personal and social identities, cultural maturity, empathy, mindfulness, collaboration, and communication via dialogue. Students also define an academic enhancement (e.g., minor, certification), an immersion experience in which they apply their skills and knowledge in a new and unfamiliar context (e.g., an internship, international experience), an honors project that reflects their learning, and a leadership or mentorship activity. All program elements involve guided or semi-structured reflection with a faculty mentor designed to provide the students a platform through which to reflect on their learning and make meaning of their experiences and to encourage the development of self-authorship. Figure 2 presents a diagram of the elements of the Honors Pathways Program.

PRELIMINARY ASSESSMENT

Self-Authorship

In order to determine if students are moving through the stages of self-authorship, a rubric was developed to score students' reflective essays. Specifically, the first and final reflections of Seminar I were scored to illuminate differences in the ways in which students make meaning of their experiences from the beginning to the end of one semester in the program after engaging with the honors college curriculum. The following will explain the process for initially creating the rubric as well as how it was used to score students' reflections throughout the course.

The rubric went through several iterations before being used to score student responses to reflective prompts. The first stage of development was to align three prominent student development theories: "self-authorship," focusing on intrapersonal development (Barber and King 2014); "developmental trajectory of social justice allies," focusing on interpersonal development (Waters 2010); and the "reflective judgment model," focusing on cognitive development (Kitchener and King 1990). Waters (2010) and Kitchener and King (1990) were incorporated because those frameworks gave a more focused picture of how students typically progress through the interpersonal and cognitive domains of development. Waters' theory (2010) specifically focuses on how students relate to each other in diverse settings (interpersonal development), and Kitchener and King (1990) focus on the ways in which students make decisions (cognitive development). While self-authorship theory encompasses development in all three domains of development (interpersonal, intrapersonal, and cognitive), the other two theories served to better inform the developing rubric by giving myriad examples of student responses that indicate various levels of development. Incorporating these three frameworks into the rubric allowed for a more comprehensive view of PHC student development throughout the semester.

Each aforementioned theory has its own development scales, each organized into stages that represent various levels of development. As noted above, self-authorship theory has three stages: the

Table 1. Pavlis Honors College Educational Framework for Student Development During the First Year of the Program

Student Traits	Developmental Goals	Student Learning Outcomes	Faculty/Staff Expectations	Learning Experiences
• Knowledge viewed as certain • Reliance on authorities (parents, faculty, textbooks) • Externally defined value system and identity • View differences as a threat to identity • Relate to others for approval • Lack understanding of different cultures—perspectives of different others are wrong • Externally driven choices	• Begin to question how authorities create knowledge • Acknowledge uncertainty in making a knowledge claim • Begin to question reliance on others for self-definition and approval • Develop awareness of own personal and social identities and culture • Acknowledge the existence of differing perspectives	• Describe personal and social identities and respectfully acknowledge different others • Summarize differing individual or cultural perspectives on a common experience, idea, or object • Construct personal insights from experiences through reflection • Identify own personal and professional goals and begin to act on them • Recognize and reproduce written and oral communication styles that clearly convey meaning	• Cultivate a safe climate for honest exchange of ideas • Validate students' capacity to know and learn • Build on students' experiences; connect academic learning to their experiences • Provide multiple valid perspectives on topics • Model critical self-reflection and offer regular feedback	Honors Seminar 1 Action on goals: • Become active in an organization with an international theme or travel abroad • Join Enterprise Team and participate in design project • Explore innovation or entrepreneurship activities on or off campus • Research internships or fellowships for 1–2 semesters or over summer with enriching research workshops

• Acting in own best interest without consideration of others' interests or needs (egocentric) • Reflection is habitual action without personal insights, often seeking approval of authority	• Develop reflective voice that shares personal insights independent of authority	• Describe respectful relationships within a diverse group work setting	• Sequence material to cultivate students' research or discovery-oriented skills	• Join a service organization and volunteer time • Experiential opportunity of own design

Note: Adapted from Taylor and Haynes (2008), King and Baxter Magolda (2005), and Baxter Magolda and King (2004).

Figure 2. Diagram of the Curricular and Co-Curricular Elements of the Pavlis Honors College

initial following formulas stage, the intermediate crossroads stage, and finally the self-authorship stage (Barber and King 2014). In similar fashion, the other two theories incorporate their own stage-style rubric, moving from less-developed to more-developed ways of thinking. Waters' theory has three stages—initial, intermediate, and mature—and the reflective judgment model has seven stages that indicate increasingly mature and developed ways of decision making (Waters 2010; Kitchener and King 1990). Relying primarily on the self-authorship stages outlined by Barber and King (2014), we created an initial rubric and then tested it against the first week's reflective responses. Quotations were selected from the first round of reflections and organized from least to most developed. This process revealed that a finer gradation of development was needed to capture smaller distinctions in student developmental trajectories. Therefore, each level was expanded to include sub-levels that fully encompassed the nuanced differences in students' methods of making meaning from their experiences. This process resulted in a nine-level progressive scale including three levels (early, mid, and advanced) within each of the three self-authorship stages. Seven of these levels were represented within the sample set. A description was included for each level that details the characteristics of student responses at each stage. The final iteration of this self-authorship rubric provided examples of student responses indicative of the various levels of development. Table 2 provides a summary of the rubric levels represented within the data set, characteristics sought in the reflections, and representative reflection quotations.

Once the rubric had been finalized, it was then used to evaluate the honors college pilot cohort students' first and last reflections of the semester. Specific quotations were chosen from each reflection that were indicative of a certain level in the rubric along the interpersonal, intrapersonal, and cognitive domains. Each student was given a score for each dimension of development, and scores from their initial reflection were then compared to those in their final reflection at the end of the semester. It is important to note that not all student responses included enough content for evaluation along all three dimensions; in these cases, students were given scores only for the dimensions that could be evaluated.

Table 2. Summary of Developmental Self-Authorship Levels Assessed in Pilot Cohort

Level		Characteristics of Written Reflection	Sample Quotation and Reasoning
Following Formulas	Mid	Surface reflection. No deeper understanding or critical analysis. Knowledge from observation and authority. Values/identities solely formed through influence of authority figures.	"I think it could have been beneficial to create a community service assignment in which we find ways to do little things around town, something as simple as picking up trash, handing out hot coca [sic], entertaining animals at the humane society." **Explanation**: Student failed to dig deeper into the need for these types of assignments. While they are worthwhile activities, the reasoning behind them or the foreseen societal/personal impact is left undiscussed.
	Advanced	Some deeper reflection but largely ignores cultural differences, leaves values and identities unexamined. Knowledge from authority or what feels right. Values and identities formed through influence of authority figures.	"I wouldn't say that I see myself, my goals, and my success differently. I am pretty firm in those beliefs, although I have enjoyed exploring these topics more in depth." **Explanation**: Student started to think about the foundation of his/her/their goals and beliefs. While they haven't changed, the student is thinking more about how they were constructed.
Crossroads	Early	More mention of roots of values/identities. Mentioned cultural differences or existing differences between identity groups and how they influence people's actions and ideas but is assuming equality. Slight move away from authority.	"I choose [sic] Diwali Night and it is clear to me I've been missing out on it for the past three years. I just thank my lucky stars I was able to attend at least once, it was loud, colorful, and simply beautiful. I was exposed to a new culture where no judgment was passed and I learned a lot about something new." **Explanation**: Student is starting to see the value of multiculturalism and dealing with the ambiguity of entering a new cultural environment. Stopped short of explaining the impact this experience had on the student's outlook or identity.

Crossroads		
Mid	Deeper analysis of identities/values, mentions details of how formed and changed. Student exhibits colorblindness, but gives rationale. Larger distance from authority. Claims are assumed to be idiosyncratic to the individual.	"Every person in the class is completely different, and that diversity to the discussion and I fit into that with my own thoughts, beliefs, and identities. There were many times that I spoke wrong, however, rather than being shunned, the thought was considered and discussed. With this, I allowed myself the freedom to think deeper both inwardly and outwardly." **Explanation**: Deeper look into why different people have different ideas but still puts all ideas as equal and worthy of discussion; fails to recognize potential microaggressions and does not unpack the history and cultural significance of particular views.
Advanced	Reluctant to acknowledge differences between identity groups, but more critical of lenses through which race and culture are seen. Seriously considering how identity influences interactions. More developed reasoning behind move away from authority. Knowledge is contextual and justified through inquiry.	"Before this course I had never really tried to define my own personal values, instead I just accepted a mold of other values that had been impressed on me. After contemplation I realized that while some of these values are true to me there are also some that don't apply to me as I thought they had. I also learned that I have other values that I hadn't previously considered. This is important to learn as early as you can, as well as to acknowledge that they are dynamic and can change based on experiences therefore it is an important activity to do periodically." **Explanation**: Students are thinking about how they have developed particular views and values. They are working to move away from values espoused by their authority figures but are incorporating them into a new set of values of their own. Speaking to the dynamic nature of worldviews is important and shows that the student is more capable of incorporating new ideas into their own view.

Table 2. Continued

Level		Characteristics of Written Reflection	Sample Quotation and Reasoning
Self-Authorship	Early	Begins to understand social construction of identity; begins to challenge inequality; voluntarily participates in allyhood, leadership, and mentorship activities. Student actively constructs knowledge.	"From the discussions we've had in class, I felt like I could help speak to these issues while suspending judgement and trying to get other students to empathize and understand the effect these events had on certain students. I had several discussions with people who were [sic] believed the [Yik Yak] threat was "just a joke" and the student received too harsh of a punishment, and encouraged them to see how they would feel if someone had threatened their life. Several people were able to shift their point of view and understand on a deeper level." **Explanation**: Student is actively unpacking identity-charged events happening around them with a social justice lens. They are starting to participate in allyhood activities and are working to help others understand differing perspectives.
	Mid	Exhibits extremely high level of reflection on identities, how knowledge is constructed, and how society constructs social identities. Student actively coordinates, seeks out, or participates in allyhood, leadership, mentorship.	No PHC Example: response would include detailed explanations of how the student came to understand certain topics or came to particular important decisions. Students should mention relevant stakeholders in their decisions/actions and how the students were able to take differing opinions into account but still come to their own decision. A discussion of the student's social identity and how that identity relates to others in the room/world should be present.

Grade Assessment

Since our program does not consider GPA as a metric for admission or retention, we were interested in understanding whether our applicants possessed a broader range of GPA than one might expect in an honors college. In other words, we wondered if we still were attracting students with high GPAs despite our goal of appealing to students from a range of academic performance levels. To answer these questions, we collected semester GPAs for our pilot cohort and calculated mean values and individual differences.

RESULTS AND DISCUSSION

Self-Authorship Assessment Results

During the pilot year of the program, 31 students agreed to have their written reflections coded for self-authorship characteristics. Of these, 26 completed both reflection assignments. These students were second- through fourth-year students who self-selected into the honors college and enrolled in the first honors seminar, which was a one-credit course designed specifically to advance self-authorship. Each written reflection was scored to indicate the level of self-authorship development within the interpersonal, intrapersonal, and cognitive domains. Figure 3 presents the results of applying the self-authorship rubric to the first and final reflections. Each graph shows the number of students coded into each developmental level for the first and final reflections over the three domains. As one moves vertically along the y-axis of each graph, the level of self-authorship becomes more advanced. The graphs show an overall shift of the distribution of the entire student population toward demonstrating higher levels of self-authorship (upwards) in all three dimensions over time. It is important to note that missing bars in these graphs indicate that no students in the data set fell into this level of development for this dimension.

To reveal individual changes in self-authorship development within all three domains, we performed an individual analysis of each student in the pilot cohort. This analysis revealed three main categories of developmental change occurring in students over the

Figure 3. Results of Analysis of Self-Authorship in Three Domains for Pilot Cohort

course of the semester. These three categories of change are shown in Table 3, where we share our coding for three different students.

Subject #21 shows an early stage developmental trajectory: the student is still following formulas but shows some growth in one or more domains. Six students coded into this category. At this developmental stage, students are resisting challenges to their externally defined self-concept. One student in this stage of development wrote in the final reflection:

> I wouldn't say that I see myself, my goals, and my success differently. I am pretty firm in those beliefs, although I have enjoyed exploring these topics more in depth. (Subject #8)

Another student found little value in the reflections:

> It was very frustrating to do the weekly reflections, because I don't really feel that I got anything out of it. I tried to really consider the questions and dig deep to answer them, but I still don't really feel like I got much out of them. (Subject #5)

A second developmental trajectory revealed students actively encountering the boundary between following formulas and self-determination (see Subject #1, for example). For these students, the uncertainty of defining oneself creates a significant barrier that is difficult to overcome. There were 10 students who fell into this trajectory. One student marvels at the development of self-awareness:

> As far as how I look at myself, I am a little more critical of my own views and my own contributions. I have learned to take a step back and actually think about my views, what the motivations are behind those views, and how to analyze and learn from past experiences. (Subject #18)

A second student in this category reflects on learning to withhold judgment:

> This class has also made me better at letting others show me who they are rather than to just pick an identity for them based on what they look like. (Subject #16)

Table 3. Sample Cases Showing Three Types of Student Developmental Trajectories Evident in First and Final Reflections

		Following Formulas			Crossroads			
Subject	Domain	Early	Mid	Adv	Early	Mid	Adv	Summary
	Cogn		1	2				Still following formulas, but demonstrating some growth (6 students)
21	Intra		1 2					*Developmental Levels of Change: 1 + 0 + 1 = 2*
	Inter		1	2				
	Cogn			1	2			Encountering the boundary between following formulas and self-determination (10 students)
1	Intra			1	2			*Developmental Levels of Change: 1 + 1 + 0 = 2*
	Inter			1 2				
	Cogn			1			2	Demonstrating significant growth, approaching self-authorship (11 students)
15	Intra				1		2	*Developmental Levels of Change: 3 + 2 + 2 = 7*
	Inter				1		2	

Note: A value of "1" in the formulas or crossroads columns indicates the level of development demonstrated in the first reflection, and a value of "2" similarly indicates the level of development demonstrated in the final reflection.

In the third category of developmental trajectory, 10 students exhibited significant growth in self-authorship, as exemplified by Subject #15. Here, students are advancing two or more stages in at least two domains. Most of these students are demonstrating thought processes consistent with the mid- to advanced-crossroads stages. In a final reflection, one student wrote about learning to construct a new worldview:

> I learned how to better suspend judgement and look at all different sides before forming an opinion. I also learned to take into account the lens that I look at the world through in my everyday life. The lenses can consist of all of the experiences, values, and ideas that you have about the world. Overall learning to have a more balanced opinion and taking time to learn about other points of view has made me a better person and that these experiences will help me significantly in the future. (Subject #22)

Another student reflected on discovering being externally defined and found value in developing more self-awareness:

> Before this course I had never really tried to define my own personal values, instead I just accepted a mold of other values that had been impressed on me. After contemplation I realized that while some of these values are true to me there are also some that don't apply to me as I thought they had. I also learned that I have other values that I hadn't previously considered. This is important to learn as early as you can, as well as to acknowledge that they are dynamic and can change based on experiences therefore it is an important activity to do periodically. (Subject #23)

Overall, when assessed in this manner, the majority of students in this pilot study demonstrated higher levels of self-authorship in their final reflection as compared to their first reflection. There was little difference based on year in college, with second-year students showing a distribution of developmental trajectories similar to third- and fourth-year students.

Grade Assessment Results

Among our 31-student pilot cohort, the average student GPA in the semester of application to the honors college was 3.55 out of 4.00 with a median of 3.69 and a range from 2.12 to 4.00. This distribution is skewed with the weight of scores toward higher GPAs. If we had applied a cutoff GPA of 3.50, seven of these students would not have been admitted to the honors college. By the end of the first seminar, these same students exhibited a mean semester GPA of 3.61, median of 3.66, and a range of 2.76 to 4.00. For each student, we calculated the difference between the GPA during the semester of enrollment in the first seminar (enrollment semester) and the GPA during the prior college semester when the student applied for admission to the honors college (application semester). Table 4 compares these GPAs averaged for groups of students sorted by GPA quartile. Among the top three GPA quartiles, we see a small downward shift in GPA, less than or equal to 0.18. For these students, the downward shift is sufficiently small such that they maintain an average GPA of over 3.50. Interestingly, however, students in the lowest quartile demonstrate an average increase in GPA of 0.28. Thus, while students with high GPAs continued to maintain high GPAs, those students at the greatest risk for not being admitted to an honors program demonstrated significant gains in GPA while exposed to an environment designed to advance self-authorship.

At the end of the first seminar, six students had a semester GPA below 3.50. Two of these students experienced an academic

Table 4. Semester GPA Changes by Quartile

		GPA Average		
Quartile	GPA Range	Semester of Application to Honors College	Semester of Enrollment in First Seminar	Difference
Highest	4.00	4.00	3.91	–0.09
Third	3.71 to 3.99	3.82	3.60	–0.18
Second	3.44 to 3.70	3.55	3.51	–0.04
Lowest	< 3.44	2.95	3.23	0.28

setback pushing them below this threshold; the other four were on an upward trajectory. This analysis reveals that some of our highest GPA students can experience individual setbacks in any given semester while some of our lowest GPA students can exhibit dramatic increases in their individual GPA. The consequences of these shifts can be disastrous for students in a program that institutes a GPA cutoff for retention. If we had placed a GPA threshold on the program, only 24 out of 31 students would have been admitted and 2 of those 31 students would have been asked to leave after the first semester. This dismissal would have occurred without consideration of their demonstrated learning related to the key outcomes of self-authorship.

Combining Data Sets

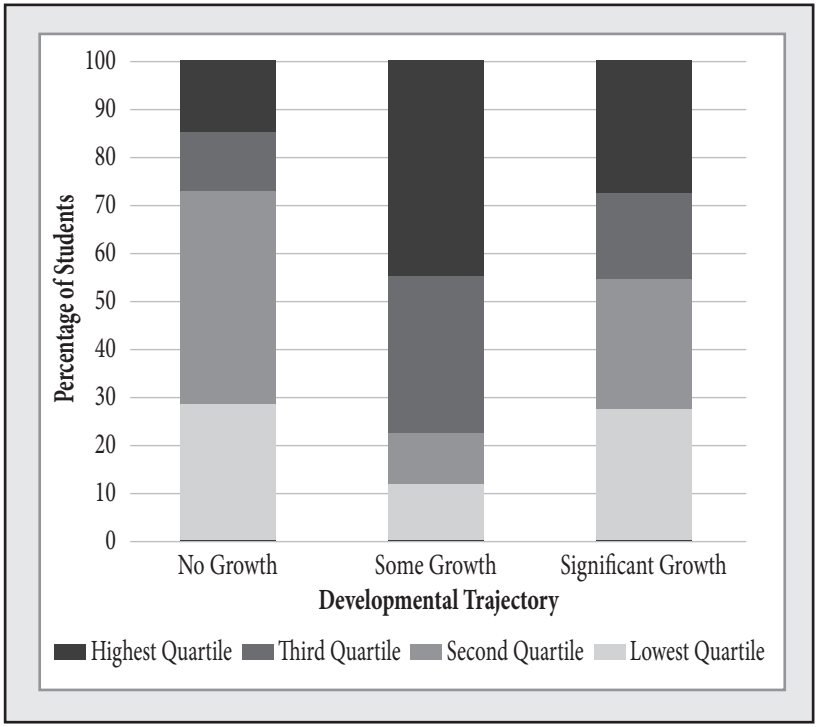
To examine the relationship between self-authorship development and academic achievement as expressed by grades, we first explored the relationship between incoming levels of self-authorship and academic achievement. We ranked all students in the cohort by their semester GPA upon application to the honors college as well as by their demonstrated level of self-authorship across the three domains. A Spearman correlation ($r = .24$) of data revealed little to no relationship between GPA and level of self-authorship development.

To examine how academic achievement might be related to self-authorship development, we summed the developmental levels of change across all three dimensions of self-authorship for each student. In Table 3, we have provided examples of the summed developmental stages calculated for each subject. For example, Subject #21 advanced one level—from mid following formulas to advanced following formulas—in the cognitive domain, did not advance in the intrapersonal domain, and advanced one level in the interpersonal domain. The resultant developmental level of change for this individual is the sum of these three values: two. We then categorized our participants by GPA quartile and identified the associated percentage of students who had demonstrated no growth (still following formulas), some growth (entering the

crossroads), and significant growth (approaching self-authorship). The results are presented in Figure 4. This analysis shows that students of any GPA can achieve the highest level of self-authorship development, or the lowest.

Complementing these results, we calculated the average demonstrated levels of advancement in self-authorship for students in each GPA quartile. Results are presented in Figure 5. We find that students in the lowest GPA quartile exhibit the highest average growth in self-authorship, while students in the third quartile exhibit the lowest. It is interesting to note that students in the lowest GPA quartile also exhibit the largest increase in GPA from their application semester to the end of the first honors seminar, while students in the third quartile exhibit the largest mean decrease in

Figure 4. Percentage of Students Demonstrating Three Differing Developmental Trajectories by GPA Quartile



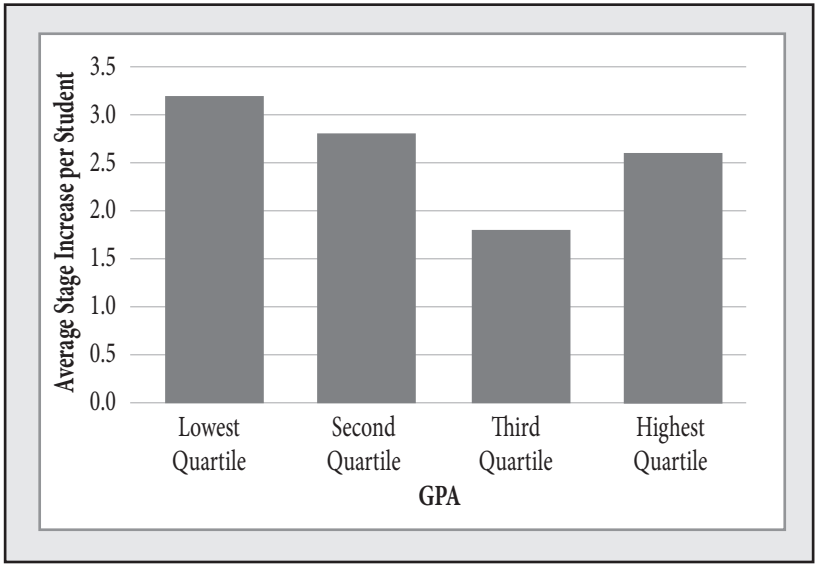
Note: Highest Quartile: 4.00; Third Quartile: 3.71–3.99; Second Quartile: 3.44–3.70; Lowest Quartile: < 3.44.

GPA. It may be that the challenges that students in the third quartile were facing in terms of their academics were presenting a barrier to non-cognitive development; however, this assertion would require further study.

A Spearman correlation of the individually ranked GPA and demonstrated overall change of level in self-authorship development ($r = -.54$) suggests a moderately negative relationship such that a higher GPA correlates to lower demonstrated self-authorship development. Thus, GPA is not a clear measure of learning in the context of our honors college learning goals.

Just as Halloun and Hestenes (1985) found that "A" and "C" students were equally likely to have changed their understanding of motion after taking introductory physics, we find that some of our top GPA students lack development in self-authorship, while some of our lower GPA students exhibit high levels of development. Since we believe that development of self-authorship is a key to post-graduate success, our data suggest that GPA is not a clear

Figure 5. Average Student Increase in Self-Authorship by Stage Summed across Three Dimensions by GPA Quartile



Note: Highest Quartile: 4.00; Third Quartile: 3.71–3.99; Second Quartile: 3.44–3.70; Lowest Quartile: < 3.44.

indicator of future self-authorship development or, by extension, post-graduate success.

LIMITATIONS AND FUTURE WORK

Reliable assessment of self-authorship is typically conducted through the use of an interview protocol specifically developed for this purpose (Baxter Magolda and King 2012). While many researchers have attempted to identify alternative methods for self-authorship assessment, none has proven to be as robust as the interview. In developing the protocol for this assessment, we consulted with Patricia M. King, an expert in self-authorship, who suggested a potentially effective alternative: assessment of student reflections in answer to prompts specifically designed to elicit responses addressing each of the three domains of development. Thus, our results are limited by the use of a new and as yet unvalidated method of assessment. Despite this limitation, we were able to identify developmental stages for most students in the cohort who completed both the first and final reflections. Future work on the use of a written reflection protocol should include a thorough comparison of this new protocol with the accepted self-authorship interview protocol and refinement of the reflection prompts to assure that the reflections elicit from participants a well-rounded and thorough discussion of their level of development across all three domains.

As a pilot study designed to provide insight for the planning and development of a new honors college, the study has a low number of participants. Further, results are not compared to a control group who did not enroll in the honors seminar. In addition, the participants self-selected into the program, making them an exceptional group for whom the messaging of the college resonated and for whom one might expect to see development. As the honors college continues to grow, new students will be added to this assessment program, thus increasing the number of participants. In this study we used a pre- and post-assessment to study individual development. To learn if the honors college is truly making a

contribution to self-authorship development among undergraduates, we will need to add to the study a set of students who do not enroll in the honors college but exhibit similar characteristics to those of our students, including those characteristics known to affect self-authorship development such as gender, race-ethnicity, and age.

CONCLUSIONS

Self-authorship development has been shown to produce graduates who are better prepared to manage adversity and change, make meaningful decisions, benefit from their educational experiences, and learn deeply throughout their adult lives. Yet college students in the United States rarely advance beyond following formulas to the crossroads (Barber and King 2014; Baxter Magolda 2007, 2014). In our pilot study, we found that a focus on the learning partnership model in our courses correlates with a shift among a majority of our students to higher demonstrated levels of self-authorship in one semester.

This pilot study also offered promising results indicating that GPA is not a strong measure of learning in the context of self-authorship development. In fact, the GPA for this cohort was moderately negatively correlated with demonstrated level of self-authorship development, and students of all GPA levels demonstrated a variety of levels and development of self-awareness (intrapersonal domain), relationship development (interpersonal domain), and knowledge construction (cognitive domain). This study also offered insight into the potential for a written reflection protocol to be used as an assessment for self-authorship. While more work is needed, the results shown here suggest that focusing our honors college on specific learning goals and using these as measures of success other than GPA provide a framework for our curriculum and assessment and also create an environment in which students may find a deeper connection between their self-defined future and their coursework such that GPA becomes a product of engagement with the honors college rather than a measure of potential for success.

As honors programs and honors colleges evolve and develop to become more diverse and inclusive, there is significant value in identifying learning goals based on educational theory and practice rather than relying on screening processes that employ metrics that place many promising students at a disadvantage. Theory and supporting practices can be used to guide admission policies, learning goals, instructional approaches, and assessment tools that create a welcoming environment for a diverse student body and encourage development of competencies that prepare students not only for work in their field of interest but for life in the 21st century.

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Adding Value through Honors at the University of Iowa: Effects of a Pre-Semester Honors Class and Honors Residence on First-Year Students

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Activities that take place early in students' college career can strongly influence their academic engagement and success. Two experiences that honors programs may provide during the initial phases of the undergraduate experience are pre- or early-semester programs and honors residence halls. This study compares honors students who lived in an honors residence hall and/or took part in a pre-semester academic, credit-bearing class upon entry into college to their honors peers who did not elect these options. It tracks the degree of the students' subsequent engagement with the honors program and also several measures of their academic success, such as grade point average (GPA), during their undergraduate experience. Results indicate that students who elected to participate in a pre-semester class and live in an honors residence were more engaged in the honors program and had greater

academic success overall at the university than honors students who did not. This direct comparison of honors program students who have elected certain honors experiences to those who have not strengthens the claim that specific honors experiences add value to the undergraduate experience.

RELATED RESEARCH

Not surprisingly, the scholarship on first-year experiences and how they affect student success is voluminous: there are many articles and books on the topic as well as the presence of a national center, the National Resource Center for the First-Year Experience and Students in Transition, with a journal, monograph series, and annual conference dedicated to the topic. Yet, even with the prevalence of first-year experiences, research on the effects of honors first-year seminars is limited and consists mostly of qualitative descriptions of local versions of the seminar. (See Vander Zee et al. 2016 for a survey of the research on honors first-year seminars.) Moreover, the pre-semester honors academic experience, which is the focus of this study, warrants distinct treatment from a first-year seminar in that its time and length of delivery (i.e., pre-semester and four days) significantly influence its effects.

We could find only one recent data-based study on a pre-semester experience (Perrine and Spain 2008) related to our study. Although Perrine and Spain (2008) did not specifically examine pre-semester experiences among honors students, the pre-semester experience they did evaluate was similar enough to the pre-semester class for entering honors students that we examined to inform our thinking. Perrine and Spain (2008) did a two-year longitudinal study on the effects that an optional, non-credit, six-day-long, pre-semester orientation program had on academic credits earned, GPA, and college retention. The orientation program was designed to help incoming students integrate into the university community. It included speakers; workshops on academic and social issues; and social events involving students, faculty, and staff. Participants moved into campus residence halls one week prior to the beginning of the fall semester, and the orientation took place that week.

Enrollment was offered to all entering students, including transfer students. Perrine and Spain (2008) used multiple regression techniques to filter out other possible predictors of academic success, including high school GPA, ACT composite, and gender. They evaluated data from a student survey and found that although participants in their pre-semester orientation program indicated that the experience helped with their academic and social adjustment to college, the orientation program had little effect on retention, credits earned, and college GPA.

As with first-year seminars, much scholarship exists on the effects of residence halls and living-learning communities on the success of students (for a selective survey see Frost and Kay 2015; also Rinn 2004). Little comprehensive data have been collected, however, specifically on the effects of the honors residence hall experience on students' academic outcomes (Rinn and Plucker 2004). As Rinn and Plucker (2004) note, how separating honors students from the general population via honors housing affects them "has not been studied comprehensively," and thus the research currently does not give insight into its possible benefits or repercussions (63).

We found four older data-driven studies specifically on the effects of housing for high-ability students. DeCoster in two studies (1966 and 1968) tracked the effects on academic achievement of placement of high-ability students in different concentrations in residence halls as compared to high-ability students randomly assigned to their residence halls. He found that a 50% to 100% concentration of high-ability students living in the same residence hall produced a significant rise in GPA, whereas high-ability students randomly assigned a residence hall showed no significant increase in GPA.

Another study (Duncan and Stoner 1975), which was undertaken at Southern Illinois University at Carbondale, compared the GPAs of 93 high-ability students, termed President's Scholars, who lived in the same residence hall, Smith Hall, over a period of three quarters to the GPAs of 84 other President's Scholars who were selected at random among those who lived elsewhere (other residence halls, off-campus, or with their parents at home). Results

were that the mean GPA of President's Scholars living in Smith Hall was not significantly higher than that of President's Scholars living elsewhere. Yet, Duncan and Stoner (1975), on the strength of slightly higher GPAs for those in Smith Hall and their survey results, state that "there appear to be some positive effects on grade point averages" (7).

In one other older study, Stewart (1980) compared the academic achievement of honors students in an honors residence hall to that of honors students living in non-honors residence halls. The results of his study indicate that "being a resident of the general honors unit is not a significant factor with respect to an honors student's GPA" (28). Stewart's study (1980), however, is limited in its scope. He tracked 74 honors students (30 who lived in honors housing and 44 who lived in non-honors housing) for only two semesters. The small sample size and short duration of Stewart's study may make his results inconclusive.

A more recent and comprehensive data-driven study that tracks the effects of an honors residence hall on the academic success of honors students was done by Campbell and Fuqua (2008). Their study tracked for a period of five years a cohort of 336 entering freshmen who were part of an honors program at a large, Midwestern, public university. The purpose of the study was to identify factors that were potential predictors of completion in the honors program. Their classifications were completers, partial completers, and non-completers. Campbell and Fuqua (2008) found that the most important discriminating variables were high school GPA, high school class rank, first-semester college GPA, and initial housing assignment into either honors or non-honors housing. The study indicates that the first-semester college GPA was the most important predictor of completion in the honors program, but the second most important predictor of honors completion was honors housing. Specifically, students who lived in honors housing for their first semester completed the honors program at a substantially higher rate than those who did not. What is not evident from the study, however, is whether this result was because the environment in honors housing helped with program completion or because

students who were initially more committed to the program chose honors housing.

Finally, as part of a literature review of studies on the effects of housing for the general student population, Rinn (2004) considers the academic and social effects of living specifically in honors residence halls. Based on her review of the literature, she speculates that honors students who live together in the same residence hall are "likely to facilitate and reinforce the academic achievement of one another" (70). Yet, in her conclusion she maintains that although living in an honors residence hall can influence or enhance academic achievement, "the social effects are arguably controversial" (76). Rinn (2004) mentions as examples of possible negative effects self-segregation, the formation of "narrow peer groups," and experiencing "isolation from the rest of the campus" (76). She thus leaves readers uncertain about the overall benefit of honors housing.

RESEARCH METHODS AND SAMPLE

Setting for the Study

The Honors Program at the University of Iowa, which is a large, public, highly active research university, was founded in 1958 as a program within the College of Liberal Arts and Sciences. The honors program became university wide, serving all undergraduate degree-granting colleges, in 2006. Its student population today is about 3,200, with approximately 700 entering first-year students per year. Throughout its existence until 2013, the program's primary focus was disciplinary honors, with students earning honors in the major at graduation by meeting departmental requirements and maintaining a strong grade point average at the university. In 2013, the honors program implemented a curriculum and program of study for awarding what then became known as "university honors." Many honors students (about 60%) still completed departmental honors as part of university honors, but either form of honors could be done separately.

Through the years a variety of efforts have been directed toward building community among University of Iowa honors students

early in their university experience. The first of these was honors-specific housing, largely in a residence hall known as Honors House, and the second, which was added later, was a pre-semester academic experience for entering honors students, titled "Honors Primetime." This study looks specifically at these two opportunities for the value they add to the honors experience.

In recent years, Honors House, an interdisciplinary living community for entering honors students, is the home for about one third to one half of the honors program entering class. It is specifically for entering honors students, and the only returning students who live there are the resident assistants. All resident assistants are honors students, but they are selected by the office of university housing and not by the honors program. Honors House is directly attached to the Blank Honors Center, which is home to the honors professional staff, classrooms, the Belin-Blank International Center for Gifted Education and Talent Development, and a 12,000-square-foot student center open to all honors students. While the student center is open to all honors students, it is commonly viewed, however, as the extended lounge space for Honors House by its residents. Although Honors House is commonly referred to on campus as a living-learning community, it does not have some of the features associated with these communities, such as common coursework and a shared disciplinary theme. Both the honors program and the Honors House resident assistants host a variety of events each year. Examples of these would be a scavenger hunt in the Blank Honors Center to meet our staff, a star-gazing event with an astronomy professor, an off-campus movie night with an invited faculty speaker, and an end-of-year gala organized by the students. None of these events is required, and participation varies between 10 and 50 percent of the Honors House residents. Overall, a strong sense of community exists within the residents of Honors House, and they are more likely to interact with the honors program professional staff than honors students who live in other residence halls.

Offered the week before fall semester classes begin, the pre-semester academic experience, Honors Primetime, is a four-day,

one-credit-hour course divided into small academic workshops. It is an elective option for entering honors students, and about one third to one half of the entering class chooses to participate in any given year. Registration for Honors Primetime is done as part of the fall schedule; students identify topical areas that interest them, such as social sciences or public policy, rather than selecting a specific workshop. The workshops are capped at twenty students and vary in disciplinary topics. Some examples of topics include learning how flight developed in birds, the mechanisms of volcanic eruptions, food sourcing for local restaurants, and a choral group learning about protest songs. All workshops are hands-on; there is no homework outside of the workshop class times, which are morning and afternoons for three-and-a-half days; and no tests are allowed. Primetime begins with a welcome event and guest speaker, and it culminates with three- to five-minute presentations by selected students from each workshop to all the Honors Primetime participants. Grading is done on a satisfactory/unsatisfactory basis.

Enrollment in Honors Primetime and selection of Honors House are optional for entering honors students. Honors Primetime has about 400–500 students taking part each year, and Honors House has about 320–350 residents each year. Honors Primetime is open to any entering honors student who chooses to take part. Honors House is available on a first-come, first-served basis when honors students make their housing selections with the university. Interested students have never been closed out of Honors Primetime if they registered on time, but some entering students have not been able to live in Honors House because they signed up for housing at a date later than other entering students. The majority of students who elect to take part in Honors Primetime also elect to live in Honors House.

Preliminary Study

This study was initiated to determine whether membership in the University of Iowa Honors Program affected student success and, more specifically, how first-year experiences influence success. A preliminary study compared the differences in the mean GPA of

students who entered the university as first-time, full-time, first-year undergraduates and honors members to those who qualified for entry in the honors program but did not accept membership in the program. Specifically, this group, which we call "honors peers," was defined as any student who entered the university with the ACT composite (≥30) and high school GPA (≥3.8) required for honors membership as an incoming first-year student but did not accept membership into the honors program. The requisite ACT composite and high school GPA were the only requirements for honors membership: that is, there were no additional application requirements other than accepting membership in the honors program. (The University of Iowa Honors Program invites qualified students after they are admitted to the university.)

The data set of this preliminary study began with 4,300 students who entered the university as first-time, full-time, first-year undergraduate college students in fall semesters between 2013 and 2016. From the original group, 175 cases were rejected for incomplete information, which left 4,125. Of that number, 3,332 entered as members of the honors program, and 793 declined the honors invitation and entered the university as honors peers; we measured the GPA of these 4,125 cases after their first year of enrollment. When measuring the GPAs of graduates, we only considered the students who earned a bachelor's degree at the university through the spring 2017 semester. This cohort of graduates included 578 students who entered as honors members and 164 who were honors peers.

The academic success, as indicated by college GPAs, of students who entered as honors members and those who entered as honors peers (i.e., students of comparable academic ability) differed significantly ($p \leq .05$). As entering first-year students, the honors members had an average four-point high school GPA of 4.06 and an average ACT composite of 30.0, while the honors peers had an average four-point high school GPA of 4.03 and an average ACT composite of 29.3. In contrast, the honors members had higher GPAs at the end of the first year (3.46 versus 3.34) and at the time of graduation (3.52 versus 3.46) than the comparison group of honors peers ($p \leq .05$ in a two-tailed test). That difference suggests that

specific components of the honors program had a positive impact on the students' academic accomplishments. This possibility led to further research that has become the basis for the main study presented herein, with the goal of determining which components of the honors program led to an increase in academic success.

Main Study Design

The sample for the main study was the same group of 3,332 students from the preliminary study who accepted membership in the honors program in the fall semesters of 2013 through 2016. Entering honors students fell into four different groups: (1) students who lived in first-year honors housing; (2) students who participated in the Honors Primetime program; (3) students who did both; and (4) honors students who did neither. We then compared these four to one another on four separate outcome measures of academic success: (1) grade point at the end of the first academic year; (2) completion of 12 or more hours of honors coursework;[1] (3) completion of the honors program requirements and University Honors graduation; and (4) GPA at graduation. Only the fall 2013–fall 2015 entering honors cohorts (n = 2,610) were evaluated for the 12-hour completion outcome.

To evaluate the effects of honors housing and Honors Primetime on the two GPA variables, we used hierarchical linear regression analysis in order to determine which variables have the greatest effects. To evaluate the effects on the two binary variables (where 0 = did not complete the coursework or did not graduate with honors, respectively) we used logistic regression. These analyses control for the variables considered when looking at GPA outcomes: sex, first-generation status, ACT composite (or converted SAT score), high school GPA (four-point scale), and the student's college at entry. Since the data were current through the end of the spring 2017 semester, we used only the fall 2013 through fall 2015 cohorts (n = 2,604). Awarding of university honors occurs at graduation. This fact limited the cases that could be used to just those students who started in fall 2013 and had earned an undergraduate degree at the university by spring 2017 (n = 578).

Additional factors, such as which college a student entered, are likely to influence these outcomes. We therefore also included variables that could be accessed for the whole sample to determine whether these first-year experiences had unique effects on an outcome after controlling for other possible correlates. We used multiple linear regression to control for first-generation status (a binary variable where 0 = not a first-generation student), sex (a binary variable where 0 = male), ACT composite score, high school four-point GPA, and the student's primary college in the first year (measured as a set of five dummy variables). All four cohorts were analyzed for GPA after the first year; only those students who had graduated by spring 2017 were analyzed for GPA at graduation.

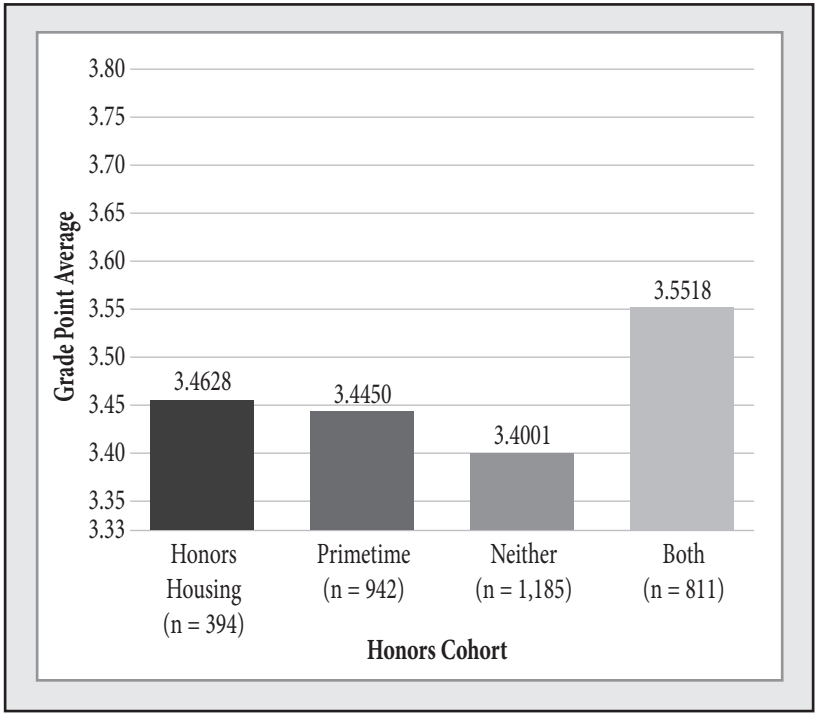
We ran regression models for each of the two GPA outcomes by adding in the binary independent variables of interest: honors residence, Primetime participation, and students who participated in both opportunities (where 0 = did not participate/apply for each of the three variables). Because of collinearity, which occurs when independent variables show too much correlation, isolating unique effects in statistical models can be difficult. To mitigate this concern, we used two models for each of the two GPA outcomes: one model with honors residence and Primetime participation present as distinct binary variables, and one model with the binary variable indicating the presence of both opportunities. The former model's variables could include students who did either one of the first-year experiences as well as students who did both, while the latter model includes a variable that only indicates participating in both first-year experiences.

We also collected qualitative feedback from Primetime participants via a survey. Specifically, we sent a survey to each participant within two weeks of the completion of the course. This survey included questions to gauge satisfaction with the specific workshop and instructor a student was assigned to as well as general questions about the Primetime experience and programming. The completion rate of the survey was very high: an average of 80 percent of Primetime participants across the years completed the survey.

RESULTS

The results suggested that honors housing and Honors Primetime did affect the academic performance of the honors students. Figure 1 shows the average GPAs of the four distinct honors cohorts at the end of the first academic year. Students who took part in Primetime but did not reside in honors housing and students who lived in honors housing but did not participate in Primetime had slightly higher GPAs at the end of their first year than honors students who did neither. The students who had the strongest academic start were those who both took part in Primetime and lived in honors housing. Specifically, they had significantly higher GPAs at the end of the first year than students who only took part in Primetime or only lived in honors housing as well as higher GPAs than

Figure 1. Grade Point Average at the End of the First Academic Year for Honors Cohorts

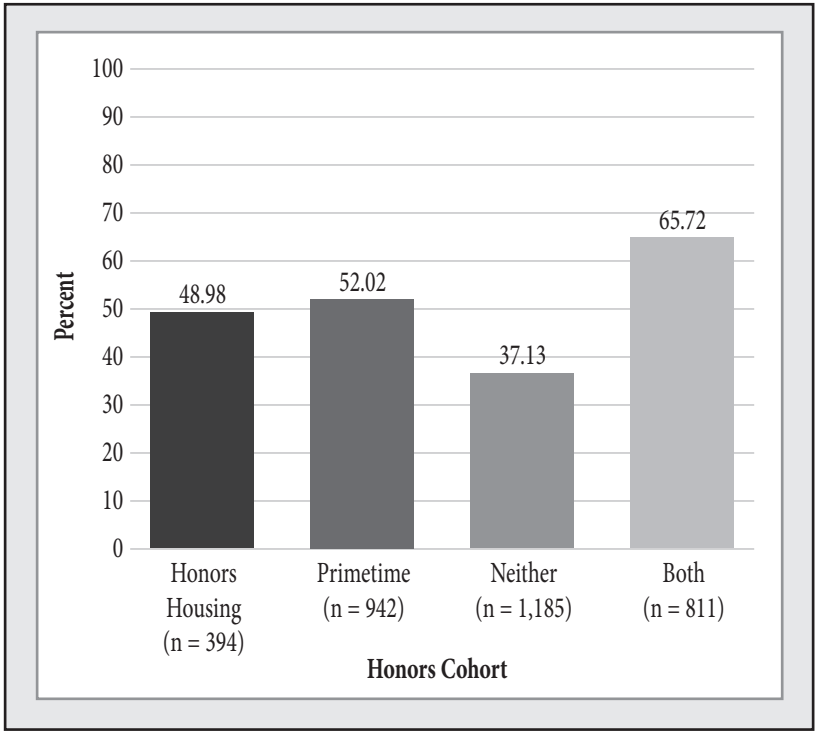


Note: The 3.33 baseline for the graph represents the minimum GPA for honors program membership.

students who did neither (F = 16.442 and $p \leq .05$). Further testing using Tukey post hoc tests revealed the "both" variable as the only cohort to differ significantly ($p \leq .05$).

Progress in completing the honors coursework requirement of 12 semester hours in the first four semesters also varied among the four honors cohorts. Figure 2 presents the percent of students meeting this milestone for each of the four groups. A greater percentage of students who took part in Primetime or lived in honors housing completed the honors coursework requirement than students who did neither experience. The effects, however, of honors housing or Primetime as isolated variables are not significant (chi-square tests showed no significant association). About half of the students who either took part in Primetime or lived in honors housing completed the honors coursework requirement. The cohort that stood

Figure 2. Percent of Honors Students Meeting the Coursework Requirement for University Honors



out once again and was significantly more successful than all other cohorts was the one in which the students took part in Primetime and lived in honors housing ($p \leq .05$; a chi-square evaluating the "neither" group demonstrated significance in a negative correlation with completing the honors coursework requirement, with $p \leq .05$). Over 65 percent of this cohort completed their honors coursework requirement, which is a necessary step in graduating with university honors. This represents a nearly 30 percentage point increase in completing the coursework requirement over students who neither took part in Primetime nor lived in honors housing. Indeed, honors students who participated in both Primetime and lived in honors housing were almost twice as likely to complete their honors coursework requirement. As with first-year GPA, participation in both honors experiences markedly affects student academic success.

Participation in both Primetime and honors housing also had significant effects on graduation with University Honors (see Figure 3). A pattern similar to that in Figures 1 and 2 is apparent. Less than one-fourth of the honors students who neither took part in Primetime nor lived in honors housing graduated with University Honors by spring 2017. Students who took part in Primetime or lived in honors housing graduated with University Honors at about a 7 percentage point higher rate, which appears slightly higher but is not significantly different than the students who did neither. The honors cohort that was most successful at completing university honors elected both to take part in Primetime and live in honors housing: over 40 percent of that cohort graduated with University Honors, which was significantly greater than the three other cohorts ($p \leq .05$).

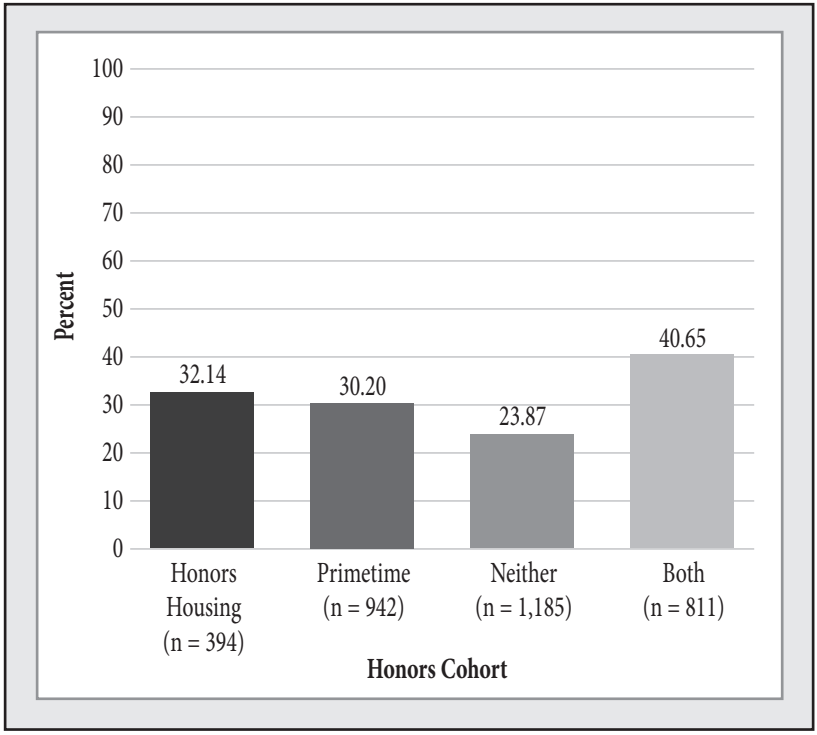
Finally, Figure 4 presents results comparing differences in GPA at graduation. Although fewer than half of the honors students in all four cohorts graduated with university honors, they were all successful in regard to their GPAs at graduation; the average GPA was 3.5 or better for each group. There was no significant difference among the four cohorts.

As noted previously, we used regression statistical analysis to look at the influence of attributes that were intrinsic to the student population, such as sex, ACT score, high school GPA, whether their

parents had earned college degrees, and what college the students entered at matriculation to the university. The three scenarios for the first-year experiences were students who participated in Honors Primetime (n = 1,754; n = 273 for graduation data points); students who were in honors housing (n = 1,205; n = 207 for data points collected at graduation); and students who both participated in Honors Primetime and lived in first-year honors housing (n = 811; n = 123 for graduates). We employed regression analysis for each of the four outcomes under examination: GPA at the end of the first year; completion of 12 semester hours of honors coursework; GPA at graduation; and graduation with University Honors.

Tables 1 and 2 present a regression model of factors influencing first-year GPA. They show a significant and positive association between first-year GPA and honors residence, female sex, ACT

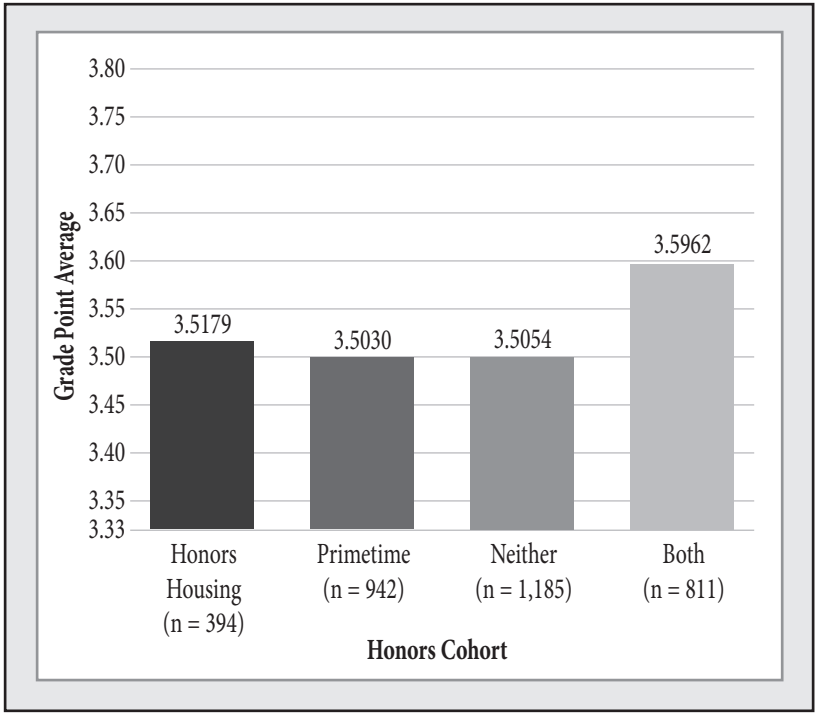
Figure 3. Percent of Honors Students Completing University Honors in Time for Graduation



composite score, and high school four-point GPA ($p \leq .01$). There is a negative correlation with first-year GPA for first-generation status and membership in one of the undergraduate colleges relative to the omitted college we used as a reference group in regression models. Participation in Primetime does not demonstrate a statistically significant association (Table 1). Comparable effects are apparent in the model using the binary variable indicating participation in both Primetime and honors housing (Table 2), with positive correlations for the Primetime and housing combination while controlling for sex, ACT, and high school GPA, and negative correlations for one of the colleges and first-generation status.

Next, we looked at GPA at graduation for those honors students who completed a bachelor's degree at the university by spring 2017. Tables 3 and 4 present the results of this analysis. By the time of

Figure 4. Grade Point Averages at Graduation for the Four Honors Cohorts



Note: The 3.33 baseline for the graph represents the minimum GPA for honors program membership.

graduation, only high school four-point GPA and ACT composite have a significant positive effect on college GPA. First-generation status and membership in one of the undergraduate colleges are negatively correlated with GPA at graduation. Neither honors housing nor Primetime participation has a significant impact on GPA at graduation (Table 3).

The combination of both Primetime and honors housing did not demonstrate significance (p = .083; see Table 4). This result is the same as in the model considering GPA at graduation with separate housing and Primetime variables. The ACT composite and high school four-point GPA are positively correlated ($p \leq .001$) with GPA at graduation, and first-generation status and participation in one of the undergraduate colleges are negatively correlated ($p \leq .01$).

Table 1. Linear Regression Model of the Impact of Independent and Control Variables on First-Year College GPA (Primetime, Honors Housing)

Variable	B	SE	β	*t*
(Constant)	.369	.156		
First Generation	–.131	.021	–.101	–6.193*
Sex	.067	.017	.069	4.019*
College				
College B	.032	.024	.023	1.350
College C	–.165	.021	–.137	–7.961*
College D	.013	.140	.002	.094
College E	.063	.041	.026	1.553
ACT Composite	.049	.004	.232	13.700*
High School 4-Point GPA	.391	.032	.199	12.067*
Primetime	.025	.016	.026	1.545
Honors Housing	.044	.017	.045	2.656*

*$p \leq .05$

Notes: N = 3,259, F = 59.36, $p \leq .05$, R^2 = .155. The coefficient of determination indicates that the model explains 15.5 percent of the variation in first-year college GPA (R^2 = .155). This is only a 0.4 percent improvement in explained variance over the model with all variables except honors housing and Primetime (R^2 = .151; results available from the authors upon request).

We evaluated four models using logistic regression: the effects of honors housing and Primetime as two binary variables on each of the binary variables indicating completion of honors coursework and graduation with University Honors and the effects of a single binary variable indicating participation in both first-year experiences on the same two dependent variables. Tables 5 and 6 present results for completion of 12 hours of honors coursework. The model including the two separate housing and Primetime variables (Table 5) did slightly improve fitness over a model excluding these variables. Both honors housing and participation in Primetime demonstrate a positive and significant ($p \leq .05$) correlation with completion of the coursework requirement. Primetime and honors housing produced the second- and third-highest effects on likelihood of completing honors coursework after high school GPA.

A model including the single binary variable indicating participation in both Primetime and honors housing and excluding the two separate variables for these experiences (see Table 6) produced

Table 2. Linear Regression Model of the Impact of Independent and Control Variables on First-Year College GPA (Both Primetime and Honors Housing)

Variable	B	SE	β	*t*
(Constant)	.371	.156		
First Generation	–.132	.021	–.102	–6.228*
Sex	.066	.017	.068	3.970*
College				
College B	.031	.024	.022	1.311
College C	–.166	.021	–.138	–8.004*
College D	.023	.140	.003	.168
College E	.064	.041	.026	1.565
ACT Composite	.050	.004	.234	13.847*
High School 4-Point GPA	.391	.032	.200	12.097*
Both Primetime & Honors Housing	.068	.018	.061	3.712*

*$p \leq .05$

Notes: N = 3,259, F = 66.26, $p \leq .05$, $R^2 = .155$.

a slightly less improved model, but the odds ratios (i.e., the probability that the two variables are related) suggest a stronger increase in the likelihood of completing honors coursework. Specifically, students participating in both experiences were 2.32 times more likely to complete honors coursework compared to 1.79 times more likely for Primetime alone and 1.65 times more likely for honors housing alone.

Tables 7 and 8 present results for the binary dependent variable indicating graduation with University Honors. The model including the two separate housing and Primetime variables (Table 7) again just slightly improved fitness over a model excluding these variables. Only honors housing demonstrated a significant ($p \leq .05$) correlation with University Honors graduation: students who lived in honors housing were 1.48 times more likely to graduate with

Table 3. Linear Regression Model of the Impact of Independent and Control Variables on GPA at Graduation (Primetime, Honors Housing)

Variable	B	SE	β	*t*
(Constant)	1.621	.312		
First Generation	–.110	.041	–.108	–2.657*
Sex	.047	.033	.060	1.412
College				
College B	–.005	.046	–.005	–.111
College C	–.123	.043	–.121	–2.845*
College E	.065	.071	.038	.917
ACT Composite	.027	.007	.163	3.841*
High School 4-Point GPA	.270	.066	.166	4.067*
Primetime	.005	.031	.007	.166
Honors Housing	.043	.032	.055	1.341

*$p \leq .05$

Notes: N = 578, F = 6.64, $p \leq .05$, $R^2 = .095$. The dummy variable for College D is not present in this model because there were no undergraduate degrees awarded through College D within this population. Assessing Primetime and honors housing separately indicates only a 0.3 percent increase in the explanation of variance in GPA at graduation (from an R^2 of .092 without housing and the Primetime variables to an R^2 of .095 when included).

University Honors. A model including the single binary variable indicating participation in both Primetime and honors housing and excluding the two separate variables for these experiences (see Table 8) again produced a slightly less improved model, and the odds ratios suggest a slightly stronger increase in the likelihood of completing honors coursework (1.56 times more likely, $p \leq .05$).

Results from the qualitative survey feedback shed additional light on these findings regarding Primetime participation. The completion rate was very high, averaging 80 percent across the years of administration, and students were very positive in their responses. For example, about 80 percent of respondents either strongly agreed (42%) or agreed (38%) that their Honors Primetime experience made them feel more confident about beginning their first semester of college, and 92 percent rated their overall Primetime experience as either excellent (38%) or good (54%).

Table 4. Linear Regression Model of the Impact of Independent and Control Variables on GPA at Graduation (Both Primetime and Honors Housing)

Variable	B	SE	β	*t*
(Constant)	1.631	.311		
First Generation	–.108	.041	–.106	–2.624*
Sex	.044	.033	.056	1.329
College				
College B	–.005	.046	–.004	–.101
College C	–.123	.043	–.120	–2.843*
College E	.067	.070	.039	.959
ACT Composite	.027	.007	.159	3.794*
High School 4-Point GPA	.272	.066	.168	4.115*
Both Primetime & Honors Housing	.065	.037	.070	1.737

*$p \leq .05$

Notes: N = 578, F = 7.63, $p \leq .05$, $R^2 = .097$. The dummy variable for College D is not present in this model because there were no undergraduate degrees awarded through College D within this population. A regression model using the binary variable indicating participation in both Primetime and honors housing demonstrates only a 0.5 percent higher explanation of variance ($R^2 = .097$).

DISCUSSION

The results of our preliminary study of entering honors students and comparable honors peers strongly suggested that the honors experience has a positive effect on student success as measured by GPA at the end of the first year and GPA at the time of graduation. Because the comparison group of honors peers was so similar to the group of honors students, it appears likely that specific components of the honors experience have had a positive impact on students' academic success. The results of the preliminary study prompted us to conduct the research presented in the main study, with its goal being to identify specific components of the honors program experience that contribute to an increase in honors students' academic success.

The main study considered two specific honors experiences, both of which occur during the first year: honors housing and a

Table 5. Logistic Regression Model of the Impact of Independent and Control Variables on Honors Coursework Completion (Primetime, Honors Housing)

Variable	B	SE	Odds Ratio
(Constant)	–9.214	.885	
First Generation	–.346	.113	.707*
Sex	.311	.090	1.364*
College			
College B	–.230	.124	.795
College C	–.419	.113	.658*
College E	–.708	.217	.493*
ACT Composite	.140	.019	1.150*
High School 4-Point GPA	1.121	.178	3.069*
Primetime	.583	.084	1.792*
Honors Housing	.503	.090	1.653*

*$p \leq .05$

Notes: N = 2,610, $p \leq .05$, Nagelkerke $R^2 = .139$. The dummy variable for College D is not present in the cases used for this model. The two separate housing and Primetime variables shown in this table did slightly improve fitness over a model excluding these variables (the Nagelkerke R^2 increased from .093 to .139, and classification improved from 61.3% to 63.2%).

pre-semester, credit-bearing class titled Honors Primetime. The data indicate that honors housing and Honors Primetime combined have a significant impact on the academic success of students in three of the four measures of student success we analyzed, as does living in honors housing as a separate variable. Although Primetime participation only showed effects in coursework completion, a magnified effect on the success measures occurred when students participated in both opportunities. The study did not control for any selection bias: that is, students who choose honors housing and Primetime are likely not equivalent to students who do not. Controlling for a selection bias would necessitate a random assignment of honors students to honors residence halls, which was not possible for this study. Yet, even without the control for a selection bias, the close nature of the comparison groups—honors students who chose to participate in honors housing and Primetime as compared to honors student who did not—suggests that these two first-year honors experiences added value to the students' undergraduate experience.

Table 6. Logistic Regression Model of the Impact of Independent and Control Variables on Honors Coursework Completion (Both Primetime and Honors Housing)

Variable	B	SE	Odds Ratio
(Constant)	–9.193	.881	
First Generation	–.348	.112	.706*
Sex	.321	.089	1.379*
College			
College B	–.239	.123	.787
College C	–.429	.112	.651*
College E	–.684	.215	.504*
ACT Composite	.147	.019	1.158*
High School 4-Point GPA	1.132	.177	3.103*
Both Primetime & Honors Housing	.841	.104	2.319*

*$p \leq .05$

Note: N = 2,610, $p \leq .05$, Nagelkerke $R^2 = .125$. The dummy variable for College D is not present in the cases used for this model.

Certainly, other factors, such as high school GPA and ACT/SAT scores, also affect academic success to varying degrees. For example, Campbell and Fuqua (2008) attempted to identify factors that were potential predictors of completion in their honors program, and they found that first-year GPA was most predictive, followed by honors housing. For that reason, this study also considered other factors that inform student success, such as high school GPA and ACT/SAT scores. The data in the study indicated that honors housing and Primetime still had a significant influence on student success, although other attributes, as would be expected, had a stronger influence. Such specific data on what enables student success allow honors programs to tailor the honors experience so that it better enables and benefits their particular student populations.

Regarding the potential for added value of honors housing, prior research shows a positive effect of residence halls and in

Table 7. Logistic Regression Model of the Impact of Independent and Control Variables on Graduating with University Honors (Primetime, Honors Housing)

Variable	B	SE	Odds Ratio
(Constant)	−9.883	2.039	
First Generation	−.285	.275	.752
Sex	.540	.214	1.716*
College			
College B	−.828	.342	.437*
College C	.110	.260	1.116
College E	−.424	.449	.654
ACT Composite	.200	.045	1.221*
High School 4-Point GPA	.648	.414	1.913
Primetime	.209	.196	1.232
Honors Housing	.392	.198	1.480*

*$p \leq .05$

Notes: N = 578, $p \leq .05$, Nagelkerke $R^2 = .123$. The dummy variable for College D is not present in the cases used for this model. Including the two separate housing and Primetime variables, as shown in this table, again just slightly improved fitness over a model excluding these variables (the Nagelkerke R^2 increased from .109 to .123, and classification improved from 69.7% to 71.1%).

particular living-learning communities on student academic success (see Rinn 2004 for a review of the literature). Our findings suggest that honors housing in particular has an effect on student academic success above and beyond that of non-honors housing.

As for Honors Primetime, its effect on student success was nearly equal to that of honors housing, and it was both popular and highly praised by its participants in the survey comments. This result contrasts in part to the findings of Perrine and Spain (2008), who saw that although participants in their optional six-day, pre-semester orientation program indicated via survey results that the experience helped with their academic and social adjustment to college, the data suggested that the orientation program had little effect on retention, credits earned, and GPA. Worth noting, however, is that their orientation program was neither academic nor credit-bearing, as is Honors Primetime at the University of Iowa.

Table 8. Logistic Regression Model of the Impact of Independent and Control Variables on Graduating with University Honors (Both Primetime and Honors Housing)

Variable	B	SE	Odds Ratio
(Constant)	–9.816	2.024	
First Generation	–.285	.275	.752
Sex	.524	.213	1.689*
College			
College B	–.834	.341	.434*
College C	.095	.259	1.100
College E	–.459	.443	.632
ACT Composite	.201	.045	1.223*
High School 4-Point GPA	.662	.413	1.938
Both Primetime & Honors Housing	.442	.223	1.556*

*$p \leq .05$

Notes: N = 578, $p \leq .05$, Nagelkerke $R^2 = .118$. The dummy variable for College D is not present in the cases used for this model. Including the single binary variable indicating participation in both Primetime and honors housing while excluding the two separate variables for these experiences, as shown in this table, did not improve the model (Nagelkerke $R^2 = .118$; classification = 70.6%).

As Perrine and Spain (2008) note, freshman orientation programs in general are based on Vincent Tinto's (1975) widely accepted concept of retention: that students' feelings of connectedness or their social integration into the campus community increase their commitment to the institution, and they are more likely to graduate. Yet, as Perrine and Spain (2008) again note, the evidence that orientation programs actually increase retention "is scarce and methodologically flawed," and those studies that are methodologically sound have shown mixed results (p. 156). It could be that orientation-like experiences benefit students in ways that are not normally tracked, such as their effect on alleviating the anxiety associated with transitioning into the university. Additionally, judging from comments generated by Honors Primetime, students are forming meaningful and lasting social relationships during the four-day experience. They are also getting to know faculty, the honors staff, and the campus better than their honors peers who do not take Primetime. Such benefits may not always show themselves through GPAs, engagement in the program, and persistence, and yet they may well be valuable to students in other ways such as mental health. Finally, worth noting is the value experiences such as Primetime provide an honors program: a way to engage university faculty with honors students and the honors program as one of the twenty or so instructors of Primetime workshops. The results suggest that unique programmatic experiences that honors programs often offer to honors students add value in terms of improved student outcomes, and thus the findings lend support for honors programs considering whether to offer pre-semester academic experiences.

IMPACT OF THE STUDY

Verifying through data the positive impact of honors housing and Primetime has influenced our program in a number of ways. First, we now promote these opportunities much more strongly to our entering students. While we have not made them requirements, we actively highlight them to our entering students and their families during campus visits and, for Primetime, during summer

orientation for new students. Our professional staff speak about the benefits of honors housing and Primetime, but our honors program student ambassadors—those who have had these specific honors experiences—are our most effective advocates for them. Their personal perspectives on living in Honors House or participating in Primetime are most beneficial in getting more of our entering class to select these options.

The second benefit of a demonstrable positive impact of honors housing and Primetime has been in gaining institutional support. Recently, a university committee reviewed living-learning communities on our campus. Sharing the results of our research on the positive effect of living in Honors House on student success clearly influenced the recommendations that the committee made. We have also been able to continue and grow Primetime with funding from the Office of the Provost because of the demonstrated impact on student success and retention in honors. At a time when resource allocation strongly benefits from or even depends upon documented program effectiveness, the results of our study on the impact of Honors House and Primetime on our students' success have greatly benefited the program and our students.

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NOTE

1. Twelve hours of honors coursework constitute half of the required honors curriculum and must be completed by the

student's fourth semester in the program. It is essentially a halfway check-in point.

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The Value Added of Honors Programs in Recruitment, Retention, and Student Success: Impacts of the Honors College at the University of Mississippi

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In a recent essay, M. Roy Wilson (2015), President of Wayne State University, and Jerry Herron, Dean of the Honors College, discuss the value added of honors programs in terms that should be familiar to numerous constituencies associated with honors education. Wilson and Herron write about honors education largely in terms of the experiences it provides students:

> the [honors] college is not tied to any particular academic discipline; instead, it represents the virtues of a liberal education that reaches across departments, schools, and colleges. For our students, the aim is to integrate

> the specialized—and essential—knowledge of the disciplines into a broader understanding of themselves, our community, and the world. With understanding comes engagement. The honors experience at Wayne State is based on four pillars—community, service, research, career—which define the curricular and co-curricular elements of our program and also highlight the distinctive strengths of this university, at the same time making real the value added, high-impact practices that define the very best of undergraduate education. (pp. 172–73)

In this important conceptualization, honors education is about academic accomplishment but not in an isolated, discipline-specific sense. Rather, the value added of honors hinges on something broader and perhaps less easily defined. Honors students may major in physics, engineering, or literature, but they are also immersed in an environment that forces them beyond these interests. Honors education is about challenging students to focus on personal growth both as citizens and scholars, and in a poignant essay, Jacqueline P. Kelleher (2005) describes her experience as an honors student:

> It was about connectivity—to each other, to our families, to our community, and to global society. It was about not being afraid to try new things or work with new ideas; it was about digging deeper into a concept or message even when it was uncomfortable or downright impossible to understand. It was about admitting our failures and recognizing our humanity. It was, and is still today. It served as the building blocks for the new path I carved out for myself. It was the scaffold I needed to discover who I was as a unique contributor to this world and what talents I could bring to the table of life. (p. 57)

University administrators, honors deans, and scholars are also increasingly examining the concept of value added and honors in more concrete terms. As college costs increase and state support declines, administrators have become more dependent on tuition

dollars—driven by the recruitment and retention of students—to help drive university budgets. Recent work by Mitchell, Leachman, and Masterson (2017) highlights the extent of these changes and resulting pressures. Specifically, the authors find that state spending for public colleges and universities is still significantly below levels prior to the Great Recession of 2008 (Mitchell et al. 2017:2). At the same time, tuition at four-year public universities has increased an average of 35 percent since 2008 (Mitchell et al. 2017:3). Recession-related budget cuts contributed extensively to increased costs of public higher education, and these funds have generally not been replaced post-recession (Mitchell et al. 2017:5). One result is a cost shift from states to students; another is an increased concern among university administrators about recruiting and retaining students as a mechanism to mitigate budget concerns.

Along with declines in state spending comes increased pressure to demonstrate what the university is getting in return for its investment in a relatively small group of honors students. The challenge here is less on what honors programs provide in terms of a meaningful experience and personal and academic growth for students, but, rather, on how well they contribute to the parallel university goals of recruitment and retention.

Of course, the broad goals of honors education and university recruitment and retention are not necessarily mutually exclusive. As West (2014) points out, an honors college can provide value to a university by recruiting high-achieving students who likely would not enroll were it not for the honors environment. In addition, the nature of the honors setting, highlighted by quality instruction, small class sizes, closer relationships with professors, and a sense of intellectual community, may foster increased retention among honors students (West 2014). Taken together, then, we see the potential value added of honors education in terms of not just the opportunities for intellectual and personal growth that honors programs accrue to honors students and faculty, but also as an additional resource for university administrators as they wrestle with the increasingly complex financial realities of higher education.

THE ROLE OF THE HONORS COLLEGE IN RECRUITMENT, RETENTION, AND STUDENT SUCCESS

In this paper, we address the issue of value added in honors education by examining recruitment, retention, and student success at the University of Mississippi (UM) and its Sally McDonnell Barksdale Honors College (SMBHC). We utilize survey data of honors students as well as a matching analysis comparing honors students and the overall student body across a variety of subgroupings and outcomes. Our goal is to add to the growing body of research that more clearly and rigorously delineates the possible impact and value of honors programs at state public universities.

Using a variety of methodological techniques, previous studies generally show a positive and significant influence for honors college participation on student retention and academic success, especially in the initial years on campus. Cosgrove (2004), for example, compares three sets of students: honors students who completed all program requirements, honors students who did not complete all requirements, and non-honors students with similar incoming academic credentials. Cosgrove (2004) finds that honors program "completers" perform better than their partial honors and comparable non-honors counterparts in terms of college GPA, graduation rates, and length of time to graduation. Shushok (2006) finds that honors students at the University of Maryland, College Park had higher first-year GPAs and retention rates at the end of the first year, though statistically significant differences in rates of retention disappeared by the fourth year. Slavin, Coladarci, and Pratt (2008), used logistic regression to examine retention and graduation rates at the University of Maine and found similar results of significant one-year effects that dissipated by the fourth year. In addition, Keller and Lacy (2013) found that participation in the honors program at Colorado State University "was associated with meaningful increases in the proportion of these students who returned for their second year at the university and in the proportion of these students who graduated within a four-, five-, or six-year period" (p. 83).

Setting

The University of Mississippi is the state's flagship university, as well as its largest, enrolling 23,780 students across its main, regional, professional, and Medical School campuses.[1] The University of Mississippi is also ranked among the nation's fastest-growing institutions, with the student body at the main and regional campuses growing approximately 60 percent during the past decade. Overall enrollment on these campuses is currently at 20,890 (86.7% undergraduate). Undergraduates entered fall 2017 with an average ACT score of 25 and high school GPA of 3.59. Undergraduate minority enrollment is 22.1 percent (12.5% African American). The undergraduate student body is 54.3 percent Mississippi residents and 54.8 percent female.[2]

Endowed in 1997, the honors college has also exhibited significant growth during the past twenty years, and it is currently home to over 1,500 undergraduates, including an average entering class of approximately 400 first-year students. These students represent 38 states and 11 countries, and they are engaged in academic pursuits across the broad spectrum of disciplines at the University of Mississippi. Fifty-four percent of honors students are Mississippi residents, 63 percent are female, and 12 percent are minorities (3.6% African American). The average ACT for the most recent first-year class is 31, along with an average high school GPA of 3.99.

The honors environment is one where students are encouraged to merge intellectual rigor with community action, fostered initially by a two-semester first-year seminar sequence focusing on broad intellectual themes, difficult social issues, contemporary challenges, and self-discovery. In addition, honors students have access to a first-year student living-learning community residence, advising (including a dedicated advisor for national scholarships), travel fellowships, and experiential learning. Class sizes are capped at 15 students and are expected to be seminar-based and contain significant writing and critical thinking components. Part of the honors experience is engaging in the "Community Action Challenge," which encourages students to become agents of change in their own community. Finally, honors students must accumulate

a minimum of 30 credit hours in honors courses, maintain a 3.5 GPA, and successfully write and defend an honors thesis to graduate with honors.

Data

We examined the value added of the honors college using two data sources. In spring 2016, we undertook a survey of currently enrolled (or recently graduated) students in the honors college. After receiving IRB approval, we contacted 1,091 students from the four most recent academic classes (entering in the fall semesters of 2012–2015) to distribute surveys using the online survey software Qualtrics.[3] Of the 1,091 students emailed, we received 521 completed surveys for a response rate of 47.8 percent. Survey responses were broken down by academic class (year of entering fall semester) as follows: 15.2 percent (n = 79) were from the class of 2012; 25.9 percent were from 2013 (n = 135); 24.2 percent were from 2014 (n = 126); and 34.7 percent (n = 181) were from 2015. Students were asked a battery of questions allowing us to examine factors related to student recruitment, satisfaction, and success at the honors college. Of particular interest for our purposes here were perceptions of the prestige of the honors college (both individually and relative to the university as a whole) and whether the student would have attended the university were it not for the honors college.

In addition, we also made use of administrative data from honors and university student data systems. To determine factors that influence progress in the program, we examined the path of students through both the honors college and the university from 2012–2015. For honors students, we evaluated the entering classes from each of the last four years for a sample size of 1,503 students. We then matched these student attributes with similar data for the overall student body. We discuss the process of data matching in greater detail below. Using information collected in the applications and other updated information as the students completed each semester, we analyzed factors that may have a significant influence on their likelihood of staying active in the honors college as of the end of the spring semester in 2016.

FINDINGS

Value Added and Recruitment

Our principal interest in examining honors student survey data was to determine if the honors college does provide added value to the university via recruitment of higher achieving students. Following recent work by Nichols and Chang (2013), we asked students to respond to a battery of possible influences on their initial decision to enroll in the honors college. Similar to the case in Nichols and Chang (2013), respondents overwhelmingly cited aspects of the honors college that distinguish it from the regular university environment as prominent factors in their decision to attend the university and its honors college. The availability of small class sizes was cited as most influential in the decision to enroll, with 77.6 percent of respondents noting this factor as either "very influential" or "extremely influential" in their decision to attend. Opportunities for deeper learning (63.6%) and the possibility of research, travel, and leadership opportunities (58.8%) are also strong influences, as was the opportunity to make meaningful connections with faculty (52.8%).

Of additional interest were differences in student evaluations of the perceived prestige of both the honors college and the university as influences on the decision to attend the university. Table 1 presents the results of these comparisons. From this initial look at the data, we see that the honors college provides added value as a recruitment tool for the university. Almost 60 percent of respondents cited the prestige of the honors college as very or extremely influential on their decision to attend. Students were over twice as likely to report that the reputation of the honors college was very or extremely influential as they were to report that the reputation of the university was very or extremely influential in their decision. We find important differences at the other end of the evaluative spectrum as well. Whereas just 3.6 percent of honors students indicate that the prestige of the honors college was not influential for their decision to enroll, one quarter (25.8%) viewed the prestige of the university as not influential for their decision. A chi-square test[4]

comparing responses to the perceived prestige of the honors college and the university confirms that honors students are significantly more likely to credit the honors college with their decision to enroll.

We explored the potential recruitment draw of the honors college further by asking a direct question about the impact of honors and the decision to attend the university:

> One final question: would you have attended the University of Mississippi if you **had not** been accepted to The Sally McDonnell Barksdale Honors College?

Table 2 shows initial results, along with comparison by residence (in-state vs. out-of-state) and ACT score (31 and below vs. 32 and above).[5] Beginning with the entire set of respondents, we see that over half (51.7%) indicated it is likely (perhaps or definitely) that they would have attended the university even if they had not been accepted into the honors college. Importantly, however, well over one third (37.3 percent) responded that it was "unlikely" or that they would have "definitely not" attended if not for the invitation

Table 1. Reasons for Decision to Enroll: Comparing Perceived Prestige of Honors College and University (percent)

Response	Prestige of Honors College	Prestige of University
Extremely Influential	22.7	11.1
	(102)	(50)
Very Influential	36.8	15.6
	(165)	(70)
Influential	25.0	26.7
	(112)	(120)
Somewhat Influential	11.8	20.7
	(53)	(93)
Not Influential	3.6	25.8
	(16)	(116)
Total N	448	449

Notes: Numbers in parentheses are frequencies. A X^2 test for this contingency tables indicates that the association between student response and perceived prestige is significant ($X^2 = 152.88$, df = 16, $p \leq .001$).

to join the honors college. In other words, based on these survey responses, almost 150 students from an incoming class of 400 honors students probably would not be attending UM were it not for the honors college.

While a substantial percentage of students self-reported that they would probably not have attended UM without the honors college, this figure varies by both residence and ACT score. A much higher percentage of non-residents indicate they would have been unlikely to attend (49.4% compared to 27.5% for Mississippi residents). Similarly, students with the highest ACT scores are more inclined to say that they would not have attended the university without acceptance into the honors college (47.2%). Chi-square tests indicate that both of these associations are significant (Table 2).

Breaking down these data by both residency and ACT score reveals further insights into the impact of the honors college on UM enrollment, particularly among Mississippi's highest achievers on the ACT (Table 3). The students most likely to respond that they would have attended UM even without admission into the honors college are those who reside in-state and who have an ACT score at or below the 31 average for the honors college. Of these students, almost three-quarters (72.3%) said that it was likely that they would

Table 2. Reported Likelihood of Attending UM If Not for Acceptance at Honors College (percent)

Response	Overall	Mississippi Resident	Non-Resident	ACT < 32	ACT ≥ 32
Perhaps or Definitely	51.7	60.7	40.5	62.4	37.3
	(196)	(128)	(68)	(136)	(60)
Neither	11.1	11.9	10.1	7.8	15.5
	(42)	(25)	(17)	(17)	(25)
Unlikely or Definitely Not	37.2	27.5	49.4	29.8	47.2
	(141)	(58)	(83)	(65)	(76)
Total N	379	211	168	218	161

Notes: Numbers in parentheses are frequencies. A X^2 test indicates that the association between student response and residency is significant ($X^2 = 19.7$, df = 2, $p \leq .001$). A X^2 test indicates that the association between student response and ACT score is significant ($X^2 = 23.82$, df = 2, $p \leq .001$).

have attended UM even if they had not been admitted to the honors college. In other words, these are students with a strong likelihood of enrolling at the university, regardless of their acceptance into the honors college.

When looking at their counterparts with the highest ACT scores (32 and above), however, we find that the honors college does indeed add significant value to the appeal of the university in terms of recruiting high-quality Mississippi students. Compared to the almost three-quarters of students in the 31 and below ACT category, only 42 percent of Mississippi residents in the higher ACT group indicated that they would likely have attended UM without acceptance into the honors college. On the other end of the spectrum, Mississippi residents in the 32+ ACT group were nearly twice as likely to respond that it was "unlikely" or that they would "definitely not" have attended the university if not for the honors college admission (20.1% vs. 39.5%). A chi-square test reveals this association between the likelihood of a Mississippi resident attending UM

Table 3. Reported Likelihood of Attending UM if Not for Acceptance at Honors College, by Residency and ACT (percent)

		In-State		Out-of-State	
Response	Overall	ACT < 32	ACT ≥ 32	ACT < 32	ACT ≥ 32
Perhaps or Definitely	51.7	72.3	42.0	47.3	32.5
	(196)	(94)	(34)	(42)	(26)
Neither	11.1	7.7	18.5	8.0	12.5
	(42)	(10)	(15)	(7)	(10)
Unlikely or Definitely Not	37.2	20.0	39.5	44.3	55.0
	(141)	(26)	(32)	(39)	(44)
Total N	379	130	81	88	80

Notes: Numbers in parentheses are frequencies. A X^2 test indicates that an association between student response and ACT score for Mississippi residents is significant ($X^2 = 19.41$, df = 2, $p \leq .001$). A X^2 test indicates that an association between student response and ACT score for Mississippi non-residents is not significant ($X^2 = 4.22$, df = 2, $p \leq .121$). A X^2 test indicates that an association between student response and residency for those in the < 32 ACT group is significant ($X^2 = 15.5$, df = 2, $p \leq .001$). A X^2 test indicates than an association between student response and residency for those in the ACT ≥ 32 group is not significant ($X^2 = 3.95$, df = 2, $p \leq .138$).

with honors acceptance and ACT score is significant ($\chi^2 = 19.41$, df = 2, $p \leq .001$). In terms of helping to stem the brain drain and bringing the state's best students to UM, the honors college offers significant value added.

Similar results are apparent in other comparisons across the residency and ACT groups. Not surprisingly, the impact of honors admission appears strongest for non-residents in the 32+ ACT category because they are students with both the fewest ties to the state and the most academic options. Of this group, 55 percent indicate that they likely would not have attended the university without the offer of admission from the honors college. In contrast, only 32.5 percent indicated it was likely that they would have attended without the honors admission.

As noted in Table 3, chi-square tests indicate that these associations between residency-test categories and student response are significant with two important exceptions. First, for nonresidents, those students who indicate the least likelihood of attending UM without the honors college, ACT score is not significantly associated with their response on the likelihood of attending without honors admission. Without the honors college, high-achieving nonresidents would be less likely to attend UM regardless of their ACT score. In addition, we find no significant association between honors acceptance and the likelihood of attending UM when comparing the highest-achieving residents and non-residents: those in the 32+ ACT category. This survey reveals that Mississippi's highest-achieving residents report a similar impact of honors admission on their decision to attend UM as their counterparts from other states.

These data inform some concluding observations regarding the honors college and recruitment to UM. With regard to Mississippi residents at or below the honors college average ACT score, there is modest value added in terms of honors recruitment. These students are highly likely to attend the university regardless of honors. This result is not terribly surprising because this group most closely resembles the student body writ large. Yet when we examine the impact of honors college admission across a range of residency and ACT comparisons, we can isolate those students whom we can reasonably expect to have increased options, both in terms of schools

and scholarship opportunities. Here the value added component of honors status becomes obvious. Our data reveal the honors college to be a significant component in the decisions of Mississippi's highest-achieving students to attend the university. One significant additional consequence is that attracting outstanding students from other states has a strong impact on the diversity of the university student body.

Value Added and Retention, Completion, and Academic Success

We also examine whether the honors college serves a function in retaining students. Year-to-year, even semester-to-semester, retention is an important consideration for universities today, and any honors program that increases retention provides added value. While proponents of honors programs often presume higher academic performance and retention rates among honors students, determining the role that participation in an honors program contributes to this success can be problematic. For example, given the nature of the university populations, honors students often enter the academy with a greater likelihood of success in the first place.

Because of the role of the honors college in recruiting students to campus, we examine whether students who start in the honors college are more likely to stay at the university, have higher first-year GPAs, and are more likely to graduate than those who did not start in the honors college. In the analyses in Tables 4–8, we focus on retention, academic performance, and graduation rates among enrolling students at the University of Mississippi between fall 2012 and fall 2015. The dependent variables are whether students returned for the fall semester of their second (2012–2015 cohorts included in the analysis), third (2012–2015), and fourth years (2012–2014). For the 2012 cohort, we also examined whether a student graduated in four years. Finally, we evaluated an additional measure of student success: GPA after the first year for all years in the data. We classified honors participation as initial enrollment in the program and if the student remained in good standing in the honors college thereafter (Keller and Lacy 2013). Additionally,

we dropped all non-honors students with an ACT lower than 21 from the analysis because the honors college did not have any participants with an ACT score lower than 21. We dropped some students who had missing data on any of the variables included in the analysis; otherwise, each student appears as one observation in the analysis.

Descriptively, Table 4 shows the performance of honors and non-honors students on the dependent variables. We find that honors students outperform their non-honors peers across all measures with retention rates between 10 and 22 percentage points higher, a graduation rate that is 29 percentage points higher, and a GPA that is .71 higher. These differences suggest initial support for the value added of honors education in retention and student success.

These descriptive results do not, however, control for any background factors that may be driving the results beyond participation in the honors college. To account for this factor, we include various background demographics and academic performance measures as controls. Table 5 shows the control variables by honors status. We controlled for demographics including being a minority (simplified to whites vs. nonwhites) and gender. To capture academic performance, we use both ACT scores and high school GPA. We also controlled for student origin with three groups: in-state students from Mississippi and two out-of-state categories: South[6] and non-South. Finally, we included beginning academic year as a control to account for any unmeasured differences across cohorts.

Table 4. Descriptive Outcomes

Measure	Honors	Non-honors (ACT ≥ 21)	Difference
Return Year 2 (2012–2015)	96.67	85.72	10.95
Return Year 3 (2012–2015)	94.08	73.87	20.21
Return Year 4 (2012–2014)[a]	92.29	69.89	22.40
Graduated in Four Years (2012)[b]	79.51	50.92	28.59
GPA After Year 1 (2012–2015)	3.62	2.91	.71
n	1,503	9,797	

[a] The n is 1,103 for honors and 6,934 for non-honors (ACT ≥ 21).

[b] The n is 371 for honors and 2,115 for non-honors (ACT ≥ 21).

To measure the effect of honors program participation while controlling for other important factors, we used matching analysis. This type of study fits nicely with the matching framework of isolating treatment effects, such as honors college participation, in observational studies. A matching analysis matches students in the honors college to those most similar to them not in the honors program to provide a point of comparison for evaluating the effect of honors on academic performance and the likelihood of remaining in school and graduating. This method is similar to the one employed by Keller and Lacy (2013). We used a "nearest neighbor" approach in which the model selects the non-honors student or students who match the closest on the control variables with the model specifying exact matches on race, gender, and region. Specifically, the models use the Mahalanobis distance matching (MDM) procedure, which matches each treated unit to the nearest control unit within a specific distance. According to King et al. (2011), the MDM approach then removes treated units that do not

Table 5. Descriptive Statistics for Control Variables

Measure	Honors	Non-Honors (ACT ≥ 21)
Minority	11.64 (175)	14.58 (1,428)
Female	62.61 (941)	54.64 (5,353)
High School GPA[a]	3.94 (.1375)	3.49 (.4382)
ACT[a]	30.29 (2.413)	24.94 (3.003)
Region		
Mississippi	56.09 (843)	37.03 (3,628)
South	31.00 (466)	43.61 (4,272)
Non-South	12.91 (194)	19.36 (1,897)
Year		
2012	24.68 (371)	21.59 (2,115)
2013	24.68 (371)	23.63 (2,315)
2014	24.82 (373)	25.92 (2,539)
2015	25.82 (388)	28.87 (2,828)

Note: Numbers in parentheses are group frequencies except where noted.

[a] Numbers in parentheses for this row are standard deviations.

have a match within the specified distance. As Dehejia and Wahba (2002) discuss, this method reduces bias. The MDM approach may lead to less precise estimates when a large number of treated units must be removed from the model because of a lack of a matching unit within the specified distance, while propensity score matching, a common alternative, may produce more precise estimates but introduce more bias into the estimates (Dehejia and Wahba 2002). King and Nielsen's (2016) recent work also echoes the concerns of bias using propensity score matching. Given that relatively few treated units (honors students) are removed using the MDM procedure, we proceeded with the nearest-neighbor approach rather than propensity score matching. As a check for robustness, we ran the models using propensity score matching: the results did not change substantively. We specifically used exact matches for minority, gender, and regional status and adjusted for potential bias on the continuous variables high school GPA and ACT score.[7]

Table 6 presents the average treatment effect on the expected difference in potential outcomes among individuals who participated in the honors college. This result is the effect of honors college membership on retention or performance while controlling for the other variables. Table 6 shows a significant and positive influence for honors college participation compared to what would have been expected had these students not participated in honors. Compared to their nearest-neighbor matches, honors college students were 2.73 percent more likely to return for year two, 5.03 percent more likely to return for year three, and 10.12 percent more likely to return for year four. They also were 8.36 percent more likely to graduate in four years although this effect was only marginally statistically significant ($p = .08$). Finally, honors participation led to a statistically significant increase of GPA of .17 points after the first year.

While these expected differences are smaller than the differences observed in the descriptive analysis presented in Table 4, the results highlight the estimated unique effect of honors college participation, adjusting for the combined effects of all of the control variables (Keller and Lacy 2013). For example, participation in the

honors college accounts for 2.73 percentage points of the 10.95 percentage point difference between honors and non-honors students in Table 4 and 10.12 percentage points of the 22.40 percentage point difference for returning in year four. The 2.73 percentage point difference is slightly higher than that reported for Colorado State students by Keller and Lacy (2013); the 10.95 percentage point observed difference is very similar to the unadjusted difference reported in that study.

These results suggest a value added for students participating in the honors program. To test if honors participation has more of an effect on certain types of students in the program, we broke the sample into two groups: those with ACT scores above average for honors students and those with ACT scores at or below the average. While we controlled for ACT in the model in Table 6, this additional analysis allowed us to focus specifically on the groups of interest discussed earlier in the paper. Table 7 shows the MDM results for those students with ACTs above the honors college average. There are 502 honors students with an ACT greater than or equal to a 32 and 272 "nearest neighbor" non-honors students in the sample. For these high-achieving students, the treatment effect of the honors experience is not significant for retention in years two and three, nor is it for the likelihood of graduating in four years for the 2012 cohort. We do, however, find significant and substantively large effects for the retention in year four and for first-year GPA.

Table 6. Nearest Neighbor Matching Results

Outcome	Expected Difference	Robust SE	n
Return Year 2 (%)	2.73	.0105**	11,234
Return Year 3 (%)	5.03	.0144***	11,234
Return Year 4 (%)	10.12	.0192***	7,996
Graduated in 4 Years (%)	8.36	.0469	2,386
First-Year GPA	.17	.0222***	11,234

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Notes: The expected difference is the average effect of honors experience vis-à-vis the comparable "nearest neighbor" students. In the Year 2, Year 3, and First-Year GPA models, 66 observations were dropped due to a lack of suitable matches. In the Year 4 model, 41 observations were dropped, and in the Graduated in 4 Years model, 100 observations were dropped due to a lack of suitable matches.

These results suggest that participating in the honors program offers some value on retention and academic performance beyond what we would normally expect for otherwise high-achieving students.

Table 8 presents MDM results for those students with ACT scores at or below the honors college average. There are 1,001 honors students and 9,525 "nearest neighbor" non-honors students in the sample with ACTs less than 32. The results show a similar pattern and substantive results comparable to those in Table 6, which is not surprising given most of the overall sample comes from this group. The one notable exception is the significant influence of honors participation on the likelihood of graduating in four years (cf. 10.71% [$p \leq .05$] to 8.36% [n.s.] in Table 6).

Overall, the results in Tables 6–8 show similar patterns to those in previous studies on retention from across the country. Generally, students are more likely to be retained from year one to year two with significantly higher first-year GPAs when they participate in the honors program. The results also show some influence for retention in years three and four, with a notable bump for high-achieving students in year-four retention. While honors participation did not significantly increase the likelihood of graduating in four years in the overall model (Table 6) or for high-achieving students (Table 7), it was significant for those students with an ACT at or below the honors college average (Table 8). The matching method allows for

Table 7. Nearest Neighbor Matching Results (Students with ACT ≥ 32)

Outcome	Expected Difference	Robust SE	n
Return Year 2 (%)	.78	.0178	769
Return Year 3 (%)	6.94	.0435	769
Return Year 4 (%)	16.29	.0505**	477
Graduated in 4 Years (%)	–9.56	.1521	127
First-Year GPA	.26	.0647***	769

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Notes: The expected difference is the average effect of honors experience vis-à-vis the comparable "nearest neighbor" students. In the Year 2, Year 3, and First-Year GPA models, 5 observations were dropped due to a lack of suitable matches. In the Year 4 model, 23 observations were dropped, and in the Graduated in 4 Years model, 15 observations were dropped due to a lack of suitable matches.

an isolation of the unique effect of honors participation by creating a comparable group of students who do not participate in honors across a range of other variables, such as demographic features or high school academic performance, in the student population. Analyses using this methodological approach show that honors participation does produce better retention and academic performance outcomes.

Combining these results with those in the analysis of university student recruitment, we find that while students with an ACT at or below a 31 are very likely to attend the university regardless of honors participation, being a part of the honors program increases their likelihood of staying at the university and having greater initial academic success. For those students with an ACT greater than the honors college average, being participants in honors is a major reason why they chose to attend the university. This participation, while not as strongly associated with retention, does provide a boost to their academic success and long-term retention at the university. The value of the honors college is in attracting both the state's top students and those from out of state. Additionally, for those students most likely to attend the university regardless of honors admission, the honors college experience increases their academic performance relative to comparable non-honors students.

Table 8. Nearest Neighbor Matching Results (Students with ACT < 32)

Outcome	Expected Difference	Robust SE	n
Return Year 2 (%)	3.81	.0120**	10,465
Return Year 3 (%)	5.60	.0141***	10,465
Return Year 4 (%)	10.12	.0207***	7,421
Graduated in 4 Years (%)	10.71	.0498*	2,247
First-Year GPA	.17	.0235***	10,465

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Notes: The expected difference is the average effect of honors experience vis-à-vis the comparable "nearest neighbor" students. In the Year 2, Year 3, and First-Year GPA models, 61 observations were dropped due to a lack of suitable matches. In the Year 4 model, 116 observations were dropped, and in the Graduated in 4 Years model, 97 observations were dropped due to a lack of suitable matches.

DISCUSSION AND CONCLUSIONS

The concept of value added in honors education can be examined from multiple perspectives. From the point of view of the prospective or current honors student, the hope is that the honors college experience seems qualitatively different, characterized by an environment where small classes with other intellectually gifted and curious students create opportunities for deeper learning, connections with faculty, and personal growth that transcend the typical large-enrollment university model.

For university administrators working within a context characterized by increasing resource constraints, value added may take on a different dimension altogether. While administrators recognize the intrinsic value of what honors education may provide students, bottom-line budget realities factor in here, and return on investment becomes an increasing concern.

Our analyses of honors education at the University of Mississippi illustrate that these perspectives on value added are more compatible than they are contradictory. In examining factors related to the recruitment of honors students, we find that the honors setting does attract students looking for an educational experience that is different from what they are likely to receive in a more traditional university environment. Here we see the draw of the honors college providing a richer educational experience to students. The result is that honors provides value added to the institution by recruiting students who indicate that they would otherwise not have attended the university.

In addition, our survey of honors students reveals important differences in how students perceive the relative prestige of the honors college versus the university, and these differences are salient to enrollment. The perceived prestige of the honors college represents an important inducement and provides significant value added in recruitment when compared to the perceptions of the prestige of the university overall.

Finally, our survey of current honors students reveals that the honors college provides significant value added to the university by helping to recruit students who indicate that they would not

have attended the university were it not for the honors college. Most importantly, this recruitment impact draws Mississippi's highest-achieving high school students as measured by ACT to the university and helps diversify the student body by attracting academically strong out-of-state students.

With regard to retention of students, we see solid evidence of value added here as well. Our matching analysis comparing honors to non-honors students shows results consistent with other recent work in this area, with honors students showing statistically significant differences in first-year GPA as well as a higher likelihood of returning to the university in each subsequent year of their college careers. More focused comparisons lead to somewhat attenuated results, but the overall pattern is solid and indicates significant effects in terms of student success and retention.

While we do not have survey data that allow us to tap into the mechanisms that are driving these retention results, we can speculate. On the one hand, some aspect of a selection effect is likely involved here. Students who apply to the honors college may well possess traits that differentiate them from their academically similar counterparts who do not apply, and these traits may be related to retention. At the same time, however, it is also likely that the honors environment that attracts these students in the first place is also successful in providing them with an academic experience that fosters the intellectual and personal growth that they seek and that the honors environment and experiences translate into increased academic success and retention. Combined with the impact on recruitment, these results for retention and student success show how value added for the broad goals of honors education and value added in an environment of constrained resources may go hand-in-hand.

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NOTES

1. Fall 2017 enrollment data.
2. UM has a Carnegie classification of Doctoral University: Highest Research Activity.
3. IRB protocol (number 16x-255) applies to all analyses.
4. Chi-square is a common measure of association for testing relationships between categorical variables.
5. The two categories for ACT score break the distribution roughly in half around the average ACT score (31).

6. Students from the remaining 10 states of the former Confederacy.
7. This strategy accounts for potential estimator inconsistency and bias when using two or more continuous variables in a nearest-neighbor model (Abadie and Imbens 2006; 2011).

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Community College Honors Benefits: A Propensity Score Analysis

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According to Morgan and Badenhausen (2015), honors education began in the United States in 1921 when Frank Ayedelotte became president of Swarthmore College. At that time, Ayedelotte initiated an interdisciplinary curriculum that stressed critical thinking and active learning. Almost a century later, the National Collegiate Honors Council (2013) defines honors education in terms true to Ayedelotte's original vision:

> Honors education is characterized by in-class and extracurricular activities that are measurably broader, deeper, or more complex than comparable learning experiences . . . [and] honors experiences include a distinctive learner-directed environment and philosophy. (para. 2)

Similar to four-year university honors programming, community colleges have likewise established honors programs to meet the academic needs of high-achieving students. Floyd and Holloway (2006) recall that community colleges introduced honors programs

in the 1950s and 1960s in the form of "accelerated courses offered to academically talented students who had expressed interest in specific areas of study " (p. 43). In the 1980s, community colleges broadened their enrollment focus from open enrollment and social equality to increased attention to academic excellence. Carnicom (2011) reasons that increasing quality and academic rigor, especially with regard to transfer courses, led to an expansion of community college honors programming. The National Collegiate Honors Council (2017) lists 190 community college members, representing 20 percent of its membership.

Armstrong and Jones (2015), Bullock and Fennell (2015), Burrage and Coleman (2015), and many other honors program proponents contend that honors programs have the potential to make an important difference in postsecondary education. Although intriguing scholarship regarding community college honors education is developing, continued research, particularly with regard to community college honors programming, is a priority in order to answer the basic question of whether or not community college honors program participants emerge from the experience with outcomes superior to those of comparable non-honors students.

Keller and Lacy (2013) point to the significance of current quantitative research on college-level honors programs that has employed propensity score techniques because this method bolsters causal arguments by decreasing selection bias. Austin (2011) defines the propensity score as

> a balancing score: conditional on the propensity score, the distribution of measured baseline covariates is similar between treated and untreated subjects. Thus, in a set of subjects all of whom have the same propensity score, the distribution of observed baseline covariates will be the same between the treated and untreated subject. (p. 402)

In the present study, the treatment cases are defined as honors program participants (honors students), those students who completed 12 or more honors credit hours. The untreated cases, on the other hand, are defined as honors-eligible nonparticipants (non-honors

students). The propensity score analysis we employ is based on a more extensive number of confounding variables than has been characteristic of previous research. This study adjusts for 13 variables, including ACT combined and sub-scores, high school GPA, socioeconomic status, first-generation college student status, and other characteristics also linked to academic success and honors participation. Following propensity score analysis, we conducted independent samples *t*-tests, which determine if a significant difference exists between the averages of two unrelated groups, and Pearson chi-square analyses, which determine whether a statistically significant difference exists between expected and observed rates between groups to estimate the unique effect of honors program participation.

RATIONALE FOR COMMUNITY COLLEGE HONORS

Bullock and Fennell (2015) note that community colleges have become a focus of national attention as leaders acknowledge the outstanding progress that community college students are making: "Thanks to the efforts of hard-working, dedicated faculty and forward-thinking college leaders, test scores, grades, and completion rates are making slow but steady progress while achievement gaps are diminishing" (p. 27). Nevertheless, Trucker (2014) cautions that two-year colleges remain relatively low in terms of conventional measures of retention and graduation:

> longitudinal studies that track student persistence each semester serve as the primary measurement of an institution's success or, as the findings are often received at many of the country's community colleges, an institution's failure. These studies take place at the institutional and state-wide levels as well as nationally through grant-based organizations such as Complete College America. . . . [T]hese studies consistently reveal low college-wide retention and graduation rates. (p. 69)

According to the Century Foundation (2013), community colleges, which serve approximately 11 million students in the United States, are expected to educate the most at-risk students while expending minimal financial resources in institutions that are becoming more and more unconnected and dissimilar to four-year universities; thus, American higher education reflects the growing inequality in the larger society. To encourage racial and economic inclusiveness, the Century Foundation (2013) recommends that two-year colleges invest in innovative honors programming because honors programs attract high-achieving, economically disadvantaged students. Gee and Blemings (2015) further contend that community college honors programs attract high-achieving students who would not normally consider community college. Treat and Barnard (2012) also claim that honors programs facilitate regional efforts to "attract diversity in terms of underrepresented groups to their colleges and fulfill the promise of the traditional community college mission by making the transition from the community college to a selective four-year institution less onerous" (p. 695). Treat and Barnard (2012) add that community colleges serve more than half of all postsecondary students in the United States, many of whom are low income, minority, and/or first-generation college students who face barriers to entry into selective colleges and universities. Mellow and Koh (2015) concur, stating that, "counter-intuitive though it may be—open-access community colleges need programs like honors to fulfill their mission of serving students who have been under-served and are under-represented in higher education" (p. 66). The honors standard of offering small, learner-focused courses provides students the opportunity to establish a network of peer and faculty support, which substantially improves the prospects for successful completion (Mellow and Koh 2015).

HONORS AND THE COMMUNITY COLLEGE MISSION

Community college honors programs are not without skeptics. Controversy abounds regarding whether two-year honors

programs contradict the egalitarian mission of the community college. In fact, some scholars have charged that honors programs promote an elitist agenda. In response to Moltz (2010), who described a boom in community college honors programming, Shor (2010) of the CUNY College of Staten Island asks challenging questions: "Why not make the whole community college curriculum an Honors program? . . . Democracy means a level playing field and equal protection for all, not tracking and privileging." After examining the pros and cons of community college honors programs, Floyd and Holloway (2006) concede the possibility that such programs potentially segregate high-achieving students from the regular student population, thereby creating an atmosphere of elitism; however, Floyd and Holloway (2006) ultimately conclude that offering honors classes actually allows community colleges to focus on social equality and level the playing field. Pruitt (2013) explains that honors contributes to social equality because institutions offering honors meet the educational needs of students at every academic level, from the underprepared to the highly able and motivated student.

Moreover, the presence of honors programs and honors students on campus can have other beneficial effects. Clauss (2011) points out that although honors students typically complete the majority of their general education requirements in honors, they take the majority of their courses outside of honors: "honors students typically take at least 75 percent of their coursework outside of honors. The influence of honors education beyond the perimeters of a particular program is thus substantial as these bright students interact with their peers and teachers outside of honors" (p. 96). Heckler and Kanelos (2015) agree, stating that honors education enhances the experience of students not participating in honors because the traditional students benefit by observing and frequently embracing the honors students' exceptional critical thinking and research skills. Honors students bring their appetite for engagement into non-honors classes across the curriculum, potentially revolutionizing classroom interactions by transforming class discussions into moments of uncertainty or surprise. Honors

students can conceivably inspire classmates to search for and find their own answers (Clauss 2011). From this perspective, the community college honors program is actually serving all students, from those in learning support programs to those capable of the most exacting challenges. In fact, both faculty and staff recognize honors students as an important resource to leverage in efforts to facilitate community college student success. At Northeast State, honors students serve non-honors students as ambassadors, tutors, and peer mentors. Each semester, the College's TRiO program, which is a Federal outreach program serving first-generation and low income students, and the College's Center for Students with Disabilities recruit honors students to serve as tutors for their students. Since 2015, Northeast State Honors Program students have also served as peer mentors to incoming Tennessee Promise students, who receive free tuition through Tennessee's last dollar scholarship program. In this role, honors student mentors ease Tennessee Promise students' transition from high school to college and promote student engagement in and outside the classroom. Clearly, honors programs can significantly contribute to the achievement of the community college mission and enhance the reputation of the institution.

DATA ANALYSIS

The purpose of this observational study is to compare the academic achievement of community college students participating in honors programming (honors) to students who were academically eligible but did not participate in honors programming (non-honors). Specifically, we test the following hypotheses: (1) there is a significant difference in final course grades for a required first-year writing course between non-honors and honors students; (2) there is a significant difference in grade point average two semesters after honors eligibility attainment between non-honors and honors students; (3) there is a significant difference in grade point average upon graduation between non-honors and honors students; (4) there is a significant difference in retention from fall of eligibility to fall of the second year (second-year retention) between non-honors

and honors students; (5) there is a significant difference in community college graduation rate between non-honors and honors students; and (6) there is a significant difference in number of semesters to graduation between non-honors and honors students.

We asked for and received Internal Review Board approval to access and analyze archival data collected from Northeast State Community College, a medium-sized community college in Tennessee. In sum, we included five honors-eligible cohorts from academic years 2008 to 2013 in the design. For the five cohorts, we collected the following data: (1) first-year cumulative GPA at the end of the second semester after honors eligibility (a minimum of 24 credit hours); (2) cumulative GPA at the time of graduation; (3) retention from the fall of eligibility to the following fall (second-year retention); (4) graduation data, including number of semesters to completion; and (5) final course grade in English Composition II, a required first-year writing intensive course. The Office of Academic Technology provided final course grades from Desire to Learn (D2L), the learning management system used by the institution. For those students whose instructors did not utilize D2L, the Humanities Division staff provided grades collected from course records they routinely maintain.

To be eligible for honors, new students must have earned a composite ACT score of 25 or higher or an SAT of 1140 or higher. Returning students became eligible if they achieved a 3.25 GPA or higher regardless of ACT or SAT scores. Of those who were eligible for honors, 95 participated in the honors program while 357 did not. We present summary statistics describing the honors and non-honors comparison groups in Table 1. With a few exceptions, honors and non-honors groups were not substantively different. Among honors participants, 58 percent (n = 55) were female and 42 percent (40) were males; of the non-honors students, 62 percent (223) were female, and 38 percent (134) were male. These results are somewhat different from those reported by Keller and Lacy (2013), who found that "women were more than twice as likely as men to participate in honors" (p. 78). Although the majority of honors-eligible students in the present study were female, a higher

percentage of females did not participate compared to the population of eligible males who did not participate. Eighty-seven percent of the honors students were white, whereas 95 percent of the non-honors students were white; there were not substantial numbers of other races represented within the data set to disaggregate specific racial categories. Thus, we combine nonwhite groupings for a dichotomous measure of white compared to nonwhite race-ethnicity. Eighty-one percent of the honors students in the data set were traditional students, which we define as 24 years of age or younger. Nineteen percent of honors students were non-traditional students,

Table 1. Demographics of Population

	Honors		Non-Honors		Total	
Measure	N	%	N	%	N	%
Gender						
Female	55	58	223	62	278	62
Male	40	42	134	38	174	38
Race-Ethnicity						
Non-White	12	13	18	5	30	7
White	83	87	339	95	422	93
Age at Eligibility						
Traditional	77	81	273	76	350	77
Non-Traditional	18	19	84	24	102	23
Dual Enrolled	29	31	50	14	79	17
High School Type						
Public	93	98	355	99	448	99
Private	0	0	0	0	0	0
Homeschool	2	2	2	1	4	1
Low Income[a]	45	59	178	56	223	57
First Generation[a]	26	54	143	69	169	66
Total	95	100	357	100	452	100

[a] The measures of income had missing data for 19 honors students (20%) and 41 non-honors students (11%). The measure of first-generation status had missing data for 47 honors students (50%) and 150 non-honors students (42%).

defined as students 25 years of age or older. On the other hand, 76 percent of non-honors students were traditional, while 24 percent were non-traditional. The vast majority (98%) of honors students had attended public high schools; similarly, 99 percent of non-honors students had attended public schools. Although none of the students attended private high schools, 2 percent of honors students were homeschooled, and 1 percent of non-honors students were homeschooled. Fifty-nine percent of the honors students met the criterion of low income status based on whether they received the maximum Pell award; likewise, 56 percent of non-honors students met the criterion of low income status. Interestingly, in the present study, a higher percentage of honors students than non-honors students were low income. Fifty-four percent of honors students were first-generation college students while 69 percent of non-honors students were first-generation attendees. That 44 percent of the students in the data set left parental education information missing and did not indicate parental education levels should be noted. Nonetheless, the majority of the students who did answer were low income and first-generation college students, characteristics associated with students at risk of dropping out.

Only 14 percent of non-honors students had participated in dual enrollment while 31 percent of honors students had participated in dual enrollment. Although both populations were likely to succeed in community college honors courses, the dual enrollment experience may have facilitated the development of self-efficacy in those students who decided to accept the honors challenge. Additionally, dual enrollment students may have developed expectations of self that compelled them to take the honors challenge. Lile, Ottusch, Jones, and Richards (2017) found that dual enrollment students' "*sources of role expectations* . . . included self-reflection and peer, family, teacher, and structural expectations" (p. 95). A large percentage of honors participants were first-generation college students (54%); however, a noticeably larger number of non-honors students (69%) were first generation. Similarly, the vast majority of both honors and non-honors students were white; however, while only 5 percent of non-honors students were non-white, 13 percent of honors students were nonwhite.

Honors Assessment Research Trends: Propensity Score Analysis

Austin (2011) notes that, in observational studies, an individual's decision to engage in a "treatment," such as an honors program, is shaped by that individual's attributes. Therefore, "baseline characteristics of treated subjects often differ systematically from those of untreated subjects" (p. 400). To address confounding variables, Austin recommends adjusting for fundamental variations when assessing the effect of a treatment on outcomes. Traditionally, researchers have utilized regression adjustment to explain differences in baseline attributes between treated and untreated subjects, but researchers are increasingly interested in techniques grounded in the propensity score to diminish or remove, as Austin (2011) explains, "the effects of confounding when using observational data" (p. 400). Furtwengler (2015), however, warns of important limitations associated with establishing propensity scores regarding honors program participation and the associated outcomes; he recommends the following: (1) including students' academic goals and declared majors as baseline characteristics, and (2) exploring the influence of honors and non-honors participation on individual course success, graduation, retention, and time to graduation. Therefore, we utilized propensity score matching (PSM) to generate two equally matched sample groups that served as the foundation of the analyses. PSM utilizes logistic regression to generate a propensity score for individual participants, which indicates the probability that each individual will participate in the treatment under examination: honors program participation in this case. In essence, the propensity score accounts for sample selection bias that contributes to differences in the probability of being in one group as opposed to the other (Grubb, Scott, and Good 2017). We utilized PSM as a method to better estimate the effect of honors programming, the treatment effect, on the student outcome criteria variables of grade in a first-year required English composition course; cumulative GPA two semesters after honors eligibility attainment; cumulative GPA upon graduation; second-year retention; graduation

rate; and number of semesters to completion between the groups (non-honors = 0, honors = 1). The propensity score was defined as the probability of honors participation based on the covariates listed in Table 1 because these characteristics impact academic success. Additionally, we included the baseline characteristics of ACT scores and high school GPA because this information provides "a measure of students' motivation and perseverance" (Keller and Lacy 2013:76).

We used archival data collected from the following years: 2008, 2009, 2010, 2011, 2012, and 2013. For the five cohorts, the director of the college's office of Research and External Reporting collected all covariate and outcome data, resulting in an initial data set that included 4,931 individuals. We then screened the data set to remove students with incomplete covariate information such as no high school GPA, no or incomplete ACT score, incomplete Compass test score information, or no English Composition II grade. After we eliminated all of the incomplete or missing records from the data set, a total of 452 unique student records remained with 95 (21%) meeting the study's definition of honors participants (honors) and 357 (79%) meeting the study's definition of honors-eligible non-participants (non-honors).

Matching on the Propensity Score

We then imported the data into *R* statistical software and matched students using the "Match It" package version 2.4–21 (Ho, Imai, King, and Stuart 2013). The Match It package contains several methods for matching and provides other packages to assist with analytical choices. Each individual received a propensity score in the data reports and a weight so that the covariates were balanced as evenly as possible. The propensity score signified the probability that an honors eligible student will enroll in honors based on the above 13 observable covariates, which represented the predictors. After matching, 95 non-honors students were matched with the 95 honors students on the propensity score, leaving 190 students in the population for outcomes assessment. We then generated

a summary of the balance for the unmatched and matched data, which appears in the Appendix.

Effect of Honors on Learning Outcomes

In the next phase of the analysis, we determined the effects of honors participation on the above selected student outcome variables. Furtwengler (2015) argued that researchers should ascertain the impact of the honors education experience so that "if a positive or negative effect [is] associated with participation . . . high-achieving college-going students are aware of the associations and their options" (p. 275). We selected English Composition II as an outcome appropriate for assessment because the course is a general education core course that requires literary criticism, research, and analysis. Additionally, like Furtwengler (2015), we studied the scale of the impact of taking part in honors as measured by overall GPA because GPA has been correlated with "personality and motivation, achievement striving, individual learning, academic performance, [and] team learning . . ." (p. 279). We also sought to confirm Keller and Lacy's (2013) conclusion that honors program participation is correlated with significantly higher second-year retention as well as a larger percentage of students who graduate in a timely manner. Because the study examines students who first enrolled in one of the fall semesters from 2008 to 2013, all the students included in the study had at least three years to complete a two-year credential. The graduation rate signifies Northeast State Community College graduation.

RESULTS

Concerning the hypothesis that a significant difference in final course grade for a required first-year writing course between non-honors and honors program participants exists, an independent samples *t*-test ($t = 2.15$, df = 186, $p \leq .05$) indicated that honors program participants ($M = 91.18$, $SD = 6.41$) were likely to earn significantly higher final course grades in English Composition II than their similar matched non-honors counterparts ($M = 88.77$,

SD = 8.81). Honors students were more likely to earn a final numerical course grade corresponding to the letter grade of A in English Composition II. Comparable non-honors students also performed well but were more likely to earn a final numerical course grade corresponding to the letter grade of B in the same course. The 95 percent confidence interval for difference in means was .19 to 4.63; however, the Cohen's effect size value (d = .31) suggests a weak to moderate practical significance of the difference. This finding confirms Cosgrove's (2004) conclusion that honors program graduates, typically those students who are encouraged to ask intelligent and insightful questions, perform at the highest academic levels even when compared to students with equivalent ability. Table 2 illustrates these findings.

Table 3 presents the results of an independent-samples *t*-test to evaluate the hypothesis that a significant difference exists between honors and non-honors students in cumulative GPA two semesters after honors eligibility. The test was significant at the .001 level (t = 4.42, df = 188, $p \leq .001$). Honors participants achieved a significantly higher cumulative GPA the second semester after honors eligibility (M = 3.71, SD = .35) than their comparable non-participant peers (M = 3.45, SD = .40). The 95 percent confidence interval for the difference in means was .13 to .35. Further, the Cohen's effect size value (d = .69) suggests a moderate to strong practical significance. These results are consistent with Shushok's (2006) findings regarding university-level honors students who earned a higher GPA

Table 2. Composition II Final Grades

Program	N	Mean	SD	CI
Honors [a]	93	91.18	6.41	[.19, 4.63]
Non-honors	95	88.77	8.81	

[a] Two honors students withdrew from Composition II.

Table 3. Cumulative GPA Two Semesters after Eligibility

Program	N	Mean	SD	CI
Honors	95	3.71	.35	[.13, .35]
Non-honors	95	3.45	.40	

than their non-honors counterparts by the end of the first year and suggest that community college honors participation has a positive effect on academic achievement. These outcomes indicate a positive effect of honors education that high-achieving community college students should be encouraged to consider when weighing the options available to maximize their educational experience. Providing this information to students, who typically assume that honors participation will have a negative impact on their GPA, is especially important.

Similarly, regarding the hypothesis that a significant difference exists between honors students and non-honors students in cumulative GPA upon graduation, an independent samples *t*-test did reveal, in fact, a significant difference ($t = 3.76$, df = 142, $p \leq .001$). Results from this analysis are presented in Table 4. The average cumulative GPA among honors students ($M = 3.66$, $SD = .32$) exceeds the minimum GPA necessary to achieve the institutional honor of *cum laude* (GPA 3.5-3.7), whereas the average cumulative GPA among non-honors students does not meet the minimum required for institutional honors ($M = 3.44$, $SD = .38$), which suggests that the honors experience has a positive impact on individual success and academic accomplishment. The 95 percent confidence interval for difference in means was .11 to .34, and the Cohen's effect size value (d = .63) suggests a moderate to strong practical significance.

Concerning the hypothesis that a significant difference exists in second-year retention between non-honors and honors program participants, we utilized the Pearson chi-square test. Honors students were 11 percent more likely to persist one year after honors eligibility; the proportion of honors students who persisted to the

Table 4. Cumulative GPA upon Graduation

Program	N	Mean	SD	CI
Honors	82	3.66	.32	[.11, .34]
Non-honors	62	3.44	.38	

Note: Thirteen honors students did not graduate from Northeast State. Thirty-three non-honors students did not graduate from Northeast State.

fall of their second year after attaining eligibility was .89. The proportion of non-honors students who persisted to the fall of their second year was .80; however, honors program participation and second-year retention were found not to be significantly related (Pearson $X^2 = 3.30$, df = 1, $N = 190$, $p = .07$, Cramer's $V = .25$).

Regarding the hypothesis that a significant difference exists in community college graduation rates between non-honors students and honors students, honors participation and graduation were found to be significantly related (Pearson $X^2 = 11.47$, df = 1, $N = 190$, $p \leq .001$, Cramer's $V = .13$). As illustrated in Figure 1, the proportion of honors students who graduated was .86 while the proportion of non-honors students who graduated was .65, suggesting that honors participation contributes significantly to community college degree completion. These outcomes indicate that honors students are 32 percent more likely to graduate than their non-honors peers.

Figure 1. Three-Year Graduation Rate for Honors and Non-Honors Participants

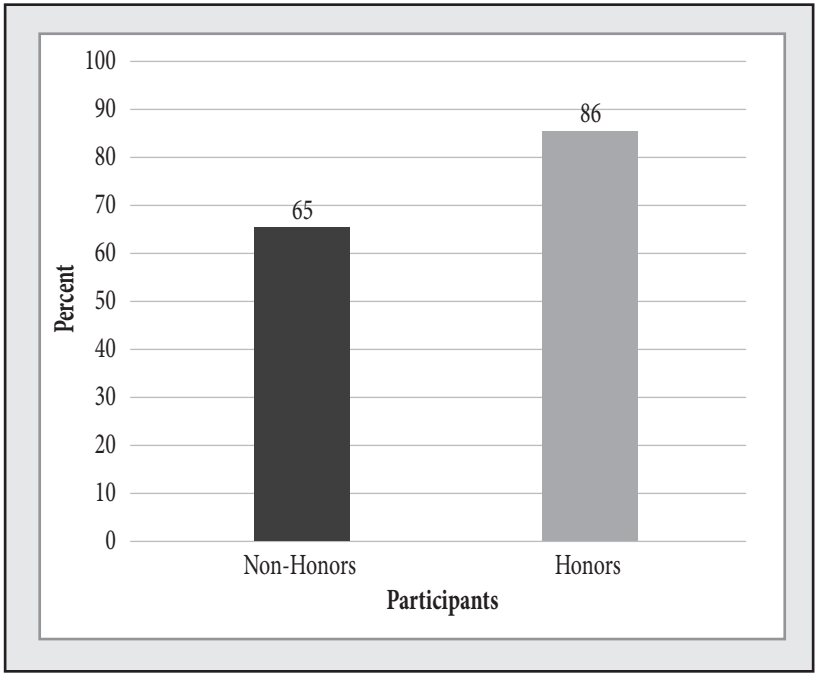

Table 5 indicates the results of an independent-samples *t*-test conducted to evaluate the hypothesis that a significant difference exists in number of semesters to completion between honors students and non-honors students. Although on first glance honors students ($M = 6.35$, $SD = 1.82$) appear to complete somewhat faster than non-honors students ($M = 6.98$, $SD = 2.4$), there was no significant difference in the number of semesters to completion ($t = -1.73$, df = 142, $p = .08$). The 95 percent confidence interval for difference in means was –1.35 to .09. The Cohen's effect size value (d = .30) suggests a weak to moderate practical significance. In both cases, honors and non-honors students complete community college within the expected time frame at about the same pace.

DISCUSSION

The major findings of this study are that honors program participants (1) earned significantly higher final course grades in Composition II; (2) earned significantly higher cumulative GPAs the second semester after starting in the honors program; (3) earned significantly higher cumulative GPAs upon degree completion; and (4) were significantly more likely to graduate. These findings substantiate prior research and support increased investment in community college honors education as a high-impact educational practice particularly relevant to at-risk high-achieving students.

Students often hesitate to take the honors challenge, perhaps because they do not possess accurate information about the benefits of honors. In an effort to increase community college honors participation, particularly among low income and first-generation students, honors directors might develop enhanced marketing strategies. Because these individuals are at-risk, they should be especially encouraged to pursue honors education. In particular,

Table 5. Number of Semesters to Graduation

Program	N	Mean	SD	CI
Honors	82	6.35	1.82	[–1.35, .09]
Non-honors	62	6.98	2.40	

high-achieving at-risk students should be carefully informed of the benefits: higher course grades, higher GPAs, and higher graduation rates, even when controlling for baseline differences between honors and eligible non-honors students. When honors program directors request a list of eligible students, that list could include more comprehensive data on eligible students, such as socioeconomic status, first-generation status, and veteran and disability status. With this additional information, honors directors can develop a more nuanced outreach. In general, invitations to join honors should include quantitative data illustrating the potentially positive impact on individual learning, motivation, and determination. Honors education often incorporates a number of what have come to be known as high-impact practices, such as writing intensive courses, undergraduate research, and vibrant learning communities. These results may well challenge existing myths and illustrate that honors participation has a positive impact on important measures of education outcomes.

RECOMMENDATIONS FOR FURTHER RESEARCH

This study examined the relationship between honors participation and outcomes at a single community college using rigorous statistical methods to control for selection bias that influences who ends up in honors programs. To address this study's limitation to one community college in Tennessee, increasing the scale would be worthwhile, for instance, by conducting a similar study of all community colleges offering honors programs in a given state. A comparative analysis of community college honors programs statewide, including the structure of honors degree programs, staffing, extracurricular requirements, and measurable outcomes, would contribute to the further development and refinement of honors best practices.

This study evaluated quantitative outcomes. In addition to evaluating quantitative outcomes, a survey of honors-eligible nonparticipants and honors participants regarding faculty interaction, extracurricular activity participation, and leadership development

activities would enrich future studies. Therefore, we recommend that future studies analyze information about the connection between community college engagement and academic success, particularly with regard to transfer scholarships.

Honors programs would benefit from future research studies designed to discover why the majority of students eligible for community college honors choose not to participate, particularly given the potential benefit to at-risk students. Specifically, a comparative analysis of honors participants and honors-eligible non-participants across income and parental education levels would improve our understanding of why some students choose to take the honors challenge and why others decline. This analysis would also provide us with information we need to improve outreach to at-risk honors-eligible students.

All students at Northeast State Community College are required to take an exit exam before graduation. Access to the exit exam results, particularly critical thinking scores, for all honors students and honors-eligible non-participants would provide a crucial outcome variable to include as a measure of critical thinking ability, which is a major objective of honors education. Honors programs would benefit from a close examination of those scores as part of improving the quality of annual honors program assessment and reporting.

Community colleges offering honors programs would clearly benefit from studying the impact of their programming, making improvements where indicated, and reporting the results to students and administrators alike in order to increase both investment and participation in honors programs.

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APPENDIX

Covariate Imbalance Check for 1:1 Optimal Match with Replacement

	Before: Proportion or M		After: Proportion or M		Chi-square or *t*-test Association Between X and T		Percent Bias		
Variable	HNR	Non-HNR	HNR	Non-HNR	Before	After	Before	After	Reduced %
ACT Composite	23.65	20.89	23.65	23.15	7.24 ($p \leq .001$)	1.47 ($p = .14$)	2.76	.51	.82
ACT English	24.44	21.19	24.44	23.72	6.26 ($p \leq .001$)	1.23 ($p = .22$)	3.25	.73	.78
ACT Math	20.73	19.03	20.73	20.29	3.45 ($p = .001$)	.54 ($p = .59$)	1.69	.43	.75
ACT Reading	26.25	22.58	26.25	25.85	6.88 ($p \leq .001$)	1.40 ($p = .16$)	3.67	.40	.89
High School GPA	3.39	3.16	3.39	3.30	3.45 ($p = .001$)	1.56 ($p = .12$)	.23	.09	.61
Gender					.43 ($p = .480$)	.09 ($p = .77$)			
Female	.58	.63	.58	.61			−.05	−.03	−.02
Male	.42	.37	.42	.39			.04	.03	.40
Race					22.22 ($p = .001$)	5.45 ($p = .24$)			
Non-White	.13	.06	.13	.06			.07	.07	.00
White	.87	.94	.87	.94			−.08	−.06	.25

Low Income					4.95 (p = .084)	2.77 (p = .25)			
True	.47	.50	.47	.52			–.03	–.04	–.33
False	.33	.39	.33	.30			–.06	.03	.50
No Response	.20	.11	.20	.18			.09	.02	.78
First-Generation College					10.37 (p = .040)	4.83 (p = .31)			
True	.30	.45	.30	.38			–.14	–.07	.50
False	.50	.44	.50	.44			.06	.06	.00
No Response	.20	.11	.20	.18			.09	.02	.78
Dual Enrolled					14.30 ($p \leq$ .001)	.14 (p = .14)			
True	.30	.14	.30	.26			.17	.05	.12
False	.70	.86	.70	.74			–.16	–.04	.75
Age	21.23	22.50	21.23	22.09	–1.63 (p = .100)	–1.07 (p = .28)	–1.26	–.86	.40
GPA First-Term Eligibility	3.75	3.36	3.75	3.77	8.14 ($p \leq$ .001)	1.38 (p = .17)	.40	–.02	.95
Major[a]					28.08 (p = .040)	7.02 (p = .54)			

[a] Major was categorized into 27 different majors for this test. For the sake of brevity, only the chi-square test results are presented here, but detailed results are available from the author upon request.

Contributions of Small Honors Programs: The Case of a Public Liberal Arts College

George Smeaton and Margaret Walsh
Keene State College

The Keene State College Honors Program began as the vision of a former college president to attract more high-achieving students to this particular public liberal arts college. In the fall of 2007, after the college had secured initial funding, a small cohort of twenty first-year students were selected for the honors program by admissions staff for their achievements and promise. The numbers were intentionally small, but the goals were ambitious for a rural college that serves a high percentage of first-generation college students (43%). The students selected for admission into honors would enroll in an honors-level writing course and live together in a "parliament" inside one of the residence halls designed to link living and learning experiences. As second-year students, they would complete a global engagement faculty-led course that would culminate in immersive travel outside the United States. They would also complete several electives and a senior seminar that met their integrative studies requirements outside their major field of study.

Students would receive honors advising, tickets to selected arts and theater events on campus, and priority course registration.

At the time of its inception, the idea of an honors program received mixed reviews from the faculty. Some were enthusiastic about the prospect of teaching these honors courses, and others opposed it in principle. Among the reasons for ambivalence were that channeling resources to students who came to the college having already demonstrated excellence could take away from average students who were yet to realize their potential. A decade later, the honors program continues to recruit, mentor, and graduate a small cohort of students. Students are now eligible to apply to enter the honors program in their second year, on the recommendation of faculty, a change that offers students a chance to find their stride in college before joining the program. Making this opportunity available to more students resulted in expanding the cohort size. While small merit scholarships were initially guaranteed to honors students, the program has shifted to increasing its financial support for needy students, particularly in the global engagement course, which increases the tuition burden on students who are traveling by several thousand dollars per student.

In 2017, after an external review and a change in leadership, the program was at a critical juncture as it began planning for the next decade. This study examines two issues that are important for assessing honors programs: (1) first-year to second-year student retention rates for high-achieving college students and (2) student engagement.

The importance of attracting and retaining high-achieving students at institutions of higher education cannot be overstated. Demographic shifts have made the recruitment of college-ready students particularly challenging in the New England region. As Williams (2017) reported, New England's total number of new high school graduates is projected to decline by 14 percent by 2032. Colleges and universities are competing for students, and admissions offices are filling students' mailboxes and email accounts with enticing amenities and tuition discounts. The governor of New Hampshire, for example, recently formed a committee of millennial

young adults to advise state leaders on issues facing them as they complete their education and prepare to enter the workplace (Associated Press 2017). While professional and career advising may ultimately be able to increase the number of workers and attract businesses, colleges may need to focus first on the retention of students through graduation.

Numerous articles featured in the *Journal of the National Collegiate Honors Council* have focused on honors student recruitment and retention. Kampfe, Chasek, and Falconer (2016) surveyed honors students at a state university and found that the two most important reasons students report for staying in their honors program are priority registration and the perceived prestige associated with honors membership. For students who were in their first two years, faculty-student connections, small high-quality classes, and a sense of a community were also significant factors. Goodstein and Szarek (2013) conducted a longitudinal study of retention and completion rates of honors students at a large public university. While students were very likely to continue from their first to second year—retention ranged from 88 to 90 percent—more than half of the students left later in the program, and completion rates ranged from 20 to 50 percent. The authors discussed efforts to improve program quality for students in midcareer, a time when undergraduates' commitment to honors may waver as they focus on their major studies. For example, students in their second year were encouraged to engage fully in honors opportunities by "opting in," and these efforts appeared to increase completion rates. Michael K. Cundall (2013) argued that honors faculty need to show students that honors-level work is not synonymous with more of the same work but rather a new challenge. Close relationships forged in smaller classes with peers and professors allow honors students to do their best work.

Many honors programs are informed by best practices from organizations such as the American Association of Colleges and Universities (AAC&U). In a 2008 report, George D. Kuh described the concept of high-impact educational practices for undergraduates (HIPs). Many of the effective teaching and learning strategies that

Kuh (2008) describes are course-based, such as first-year seminars, senior capstones, writing-intensive courses, and other intellectual experiences that consider core or big questions. Diversity, intercultural opportunities, and global learning offer students the chance to consider multiple viewpoints through study away, abroad, or in the local community. Supervised internships and faculty collaborating with students on research and service learning activities are also examples of HIPs. Kuh (2008) recommends encouraging all students to participate in at least two HIPs during their undergraduate career: one during their first year and one during their senior year. Although many majors and colleges have offered various forms of enrichment to students for years, the expansion of these opportunities has coincided with a better understanding of the value for the kind of deep learning that comes from reflection and benefits all students. Clearly, these efforts can contribute to improved retention and skill acquisition.

While high-impact practices may be designed for all undergraduate students, honors programs have been diligent about their efforts to integrate HIPs into the honors experience. Beginning in 1994, the National Collegiate Honors Council has published "Basic Characteristics" for fully developed honors programs and honors colleges, and they have been updated periodically in response to changes in student needs and higher education (NCHC [1994] 2010). Following the advice offered in the "Basic Characteristics," honors courses in our program tend to have lower enrollment than other courses, and they are often spaces where innovations can be piloted for later use with a larger group of students. Ganesh and Smith (2017) used problem-based learning to enhance critical thinking and multidisciplinary learning in courses. They incorporated collaborative and reflective approaches into the course design, and the instructors saw results in students' improvement in grades and overall mastery of the course material in health courses. Banks and Gutiérrez (2017) found ways to "stack" study abroad with undergraduate research for social science students, which enhanced their preparation for graduate school and professional pursuits.

Given the importance of identifying means to improve retention of an institution's high-achieving students and the need to involve them in HIPs, the present study had three objectives. First, the study assessed the overall impact of honors program participation on second-year retention. Second, it examined the effect of program participation on student engagement in HIPs. Third, through qualitative analysis of program documents, it examined honors program curriculum and instructional practices that may contribute to retention and student engagement.

RESEARCH QUESTIONS AND HYPOTHESES

Specifically, the study examined three broad research questions and tested two distinct research hypotheses. We enumerate those hypotheses below within the larger context of the research questions that motivated the research.

Research Question 1:

> What is the effect of honors program participation on second-year retention?

Hypothesis 1:

> First-year honors program participants will have a higher retention rate than comparable non-honors first-year students who were awarded college-sponsored merit scholarships but who did not participate in the honors program.

Research Question 2:

> How does honors program participation contribute to student participation in high-impact educational practices (HIPs)?

Hypothesis 2:

> Honors program participants will be more likely than comparison group students to report "Done or in progress" in response to the National Survey of Student Engagement (NSSE) (2011) items assessing involvement in HIPs.

Research Question 3:

> Which of the enriching educational opportunities offered by the honors program have an impact on students?
>
> Because this research question is exploratory and freewheeling, no hypothesis is proposed.

ANALYSES OF STUDENT RETENTION

We assessed the impact of honors program participation on retention by comparing second-year retention rates of program participants with rates obtained from a comparison group consisting of students who did not participate in the program but who had combined SAT scores that qualified them for honors program admission.

Method

Participants

We obtained archival retention data from a sample of 2,383 members of the incoming 2013–2015 fall cohorts of first-time, full-time, degree-seeking students. The sample consists of 984 men and 1,399 women. The sample includes 53 honors program participants and 401 comparison group members. Like honors participants, comparison group members had combined math and verbal SAT scores of at least 1,100, the minimum SAT score required for admission to the Keene State College Honors Program.

Variables Examined

We used archival institutional research data to test Hypotheses 1 and 2. Membership in either the honors or comparison group served as the predictor variable. In addition, as a means of testing the similarity of the two groups, we examined three variables identified through previous internal institutional research at Keene State College as key predictors of retention: total scores on the Scholastic Aptitude Test (SAT), first-generation college student status

(having no parents who completed an undergraduate degree), and Federal Pell Grant eligibility. The latter variable serves as a measure of socioeconomic status. We defined and measured our criterion variable, retention, as returning to the same college during the fall semester one year after matriculation. We did not include students who may have returned two or more years after matriculation.

Results

Descriptive Statistics

To assess the viability of the two predictor-variable groups, we compared the honors program group with the comparison group on a set of variables found to be predictive of retention at Keene State College. These included total SAT scores (i.e., math plus verbal), first-generation college status (having no parents who completed an undergraduate degree), and eligibility for a Federal Pell Grant. Table 1 presents a comparison of means for both honors and comparable non-honors students. Honors participants had slightly lower SAT scores, and they were somewhat less likely to be first-generation or Pell-eligible students, but these differences were not statistically significant (Table 1). Thus, there is no evidence of pre-existing group differences in these variables that could account for differences in retention of students in each group.

Test of Hypothesis

Hypothesis 1 states: "First-year honors program participants will have a higher retention rate than comparable non-honors first-year students who were awarded college-sponsored merit scholarships

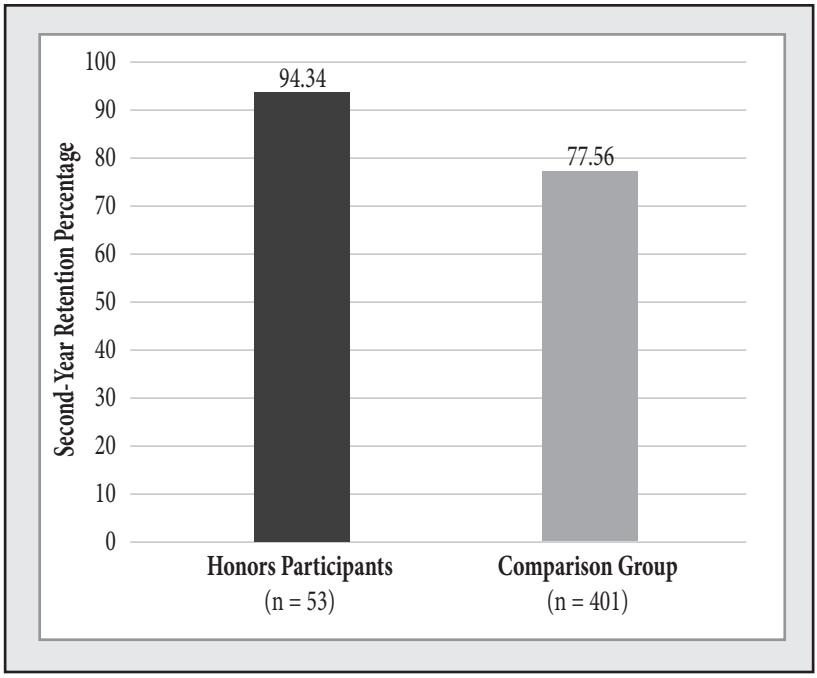
Table 1. Benchmark Characteristics of Honors Participants and Comparison Group

Variable	Honors Participants	Comparison Group	*p*
Mean SAT Total	1,164 (49)	1,169 (401)	.67
First Generation (%)	21.15 (52)	33.20 (401)	.08
Pell Eligible (%)	11.54 (52)	21.44 (401)	.10

Note: Numbers in parentheses are the number of cases. SAT total is the sum of math and verbal scores.

but who did not participate in the honors program." We tested this hypothesis using the chi-square statistical test. Chi-square (χ^2) analysis compares outcome frequency distributions (e.g., the frequency of those retained and not retained) across two or more groups to rule out the possibility that frequency differences observed across conditions are not the result of a chance occurrence. Higher χ^2 values denote a lower probability (p) that frequency differences across groups can be attributed to chance. We used the $p \leq .05$ criterion for statistical significance commonly used in social science research. Figure 1 presents a graphic comparison of second-year retention for both groups. Among students in these two groups, those who began the year as members of the honors program were significantly more likely to be retained for a second year ($\chi^2 = 8.10$, $p = .004$). Over 94 percent of honors participants persisted to the second year, but only 81 percent did among the non-honors comparison group that

Figure 1. Honors Participants and Comparison Group Second-Year Retention Rates



Note: χ^2 of percentage difference = 8.10, $p = .004$.

consisted of students who received college-sponsored merit scholarships based on their high school GPA but who did not participate in our honors program.

As hypothesized, honors program participants were significantly more likely to be retained than were academically comparable non-honors students. Because this finding is based on pre-existing groups rather than random assignment to conditions, it is possible that pre-existing differences between the two groups in variables that were not examined in this study could account for this group difference. As noted above, however, the groups did not differ significantly in the three variables internal institutional research has identified as the best predictors of retention at Keene State College.

Analysis of Participation in High-Impact Practices

A key goal of the Keene State College Honors Program is to supplement classroom learning with enriching high-impact educational practices (HIPs). Involvement in HIPs in one's first year has been found to be predictive of first-to-second-year retention (Kuh 2008). Therefore, the degree to which first-year honors students participate in HIPs may explain the program's positive impact on retaining highly prepared students for a second year. We used first-year NSSE data to determine if honors program participation results in differences in self-reported HIP involvement among first-year students.

Method

Participants

NSSE data from 19 first-year honors program participants (16 women and 3 men) were compared with responses from a comparison group of 102 first-year non-honors students (71 women and 31 men) who received college-sponsored merit scholarships based on their high school GPA. Data from Keene State College students who completed the NSSE in 2014 and 2016 were combined for this analysis to provide an acceptable sample size for the honors and comparison groups. The gender breakdown for the honors

program group is not representative of the typical breakdown for honors program participants, which typically ranges from 55% to 67% female. Although this discrepancy may represent a limitation to the discoveries obtained from the analyses of NSSE data, it is not likely to represent an alternative explanation of the findings because the female percentage of the honors and comparison groups did not significantly differ.

Measures

Administered to first-year and senior students, the National Survey of Student Engagement contains 42 self-report items that assess four clusters of linked behaviors, experiences, and beliefs referred to by the instrument's publishers as "engagement in activities that represent good educational practice" (Center for Postsecondary Research 2005:1). The engagement indicators include "academic challenge," "learning with peers," "experiences with faculty," and "campus environment." Involvement in each type of engagement area has been found to have numerous positive academic outcomes (Astin 1993; Center for Postsecondary Research 2005; Chickering and Gamson 1987; Love and Love 2005; Pascarella and Terenzini 2005). Findings from numerous studies attest to the measure's reliability and validity (Kuh, Hayek, Zhao, and Carini 2002; Pascarella, Seifert, and Blaich 2010).

To address our second research question, we examined NSSE items pertaining to participation in HIPs among first-year student respondents. Specifically, NSSE asks participants whether they had participated or plan to participate in each of a set of seven HIPs, including internships/co-ops/field experiences, participation in a learning community, study abroad, and collaboration with a faculty member on a research project. In addition to providing data on each individual HIP, the survey output generates a global measure that reports the number of HIPs marked "Done or in progress."

Procedures

Names and contact information for first-year and senior students were submitted to NSSE during the spring semesters of 2014

and 2016. The Center for Postsecondary Research administered the survey to a sample drawn from each class. The data file generated from the completed surveys contained unique student identifiers that we matched with campus data identifying honors and non-honors students to generate two independent groups: first-year honors program participants and a comparison group consisting of students included in the college's President's List and Dean's List who were not honors program participants. All students in the honors and comparison groups obtained merit-based scholarships from the college. We used chi-square analyses of response frequency differences between the two groups to test hypothesis 2.

Results

Hypothesis 2 states: "Honors program participants will be more likely than comparison group students to report "Done or in progress" in response to the National Survey of Student Engagement (NSSE) (2011) items assessing involvement in HIPs." We found support for Hypothesis 2 in both the learning community HIP item and the global HIP measure.

Participation in Learning Communities

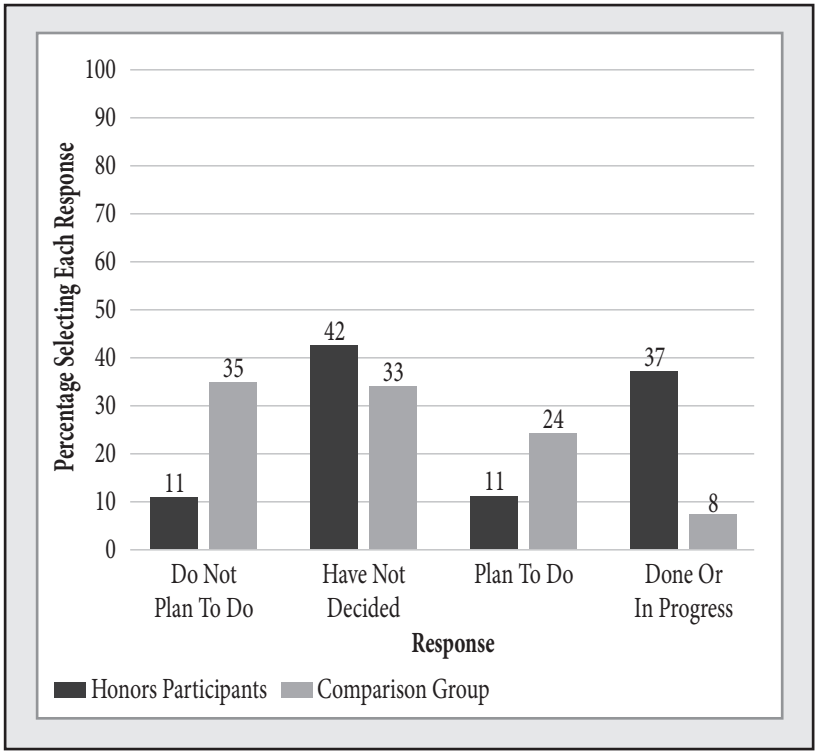
Figure 2 presents results for first-year students for the NSSE item asking about learning communities. Honors program participants were more likely than comparison group members to report that they plan to participate in a learning community or have already participated in one ($\chi^2 = 13.86$, df = 3, $p \leq .01$). Among honors participants, 48 percent selected "Plan to do" or "Done or in progress" for this HIP; in contrast, only 32 percent of comparison group members did so (Figure 2).

Global Measure of HIP Participation

Figure 3 presents results for a global measure of high-impact practices done or in progress by the end of the first year of college. For the combined HIP measure, there was an even greater difference between the honors student and comparison groups ($\chi^2 = 15.43$, df

= 3, $p \leq .001$). Among honors participants, 73 percent achieved the goal of one first-year HIP, which was recommended by Kuh (2008), but only half as many in the comparison group (37%) did so. In addition to participating in learning communities, first-year students reported other HIPs as done or in progress; these included working with a faculty member on a research project (13%), internships (7%), formal leadership in a student organization or group (6%), and study abroad (3%).

Figure 2. Percentages for First-Year Honors Participants and Comparison Groups of Responses Reporting Experience with Learning Communities

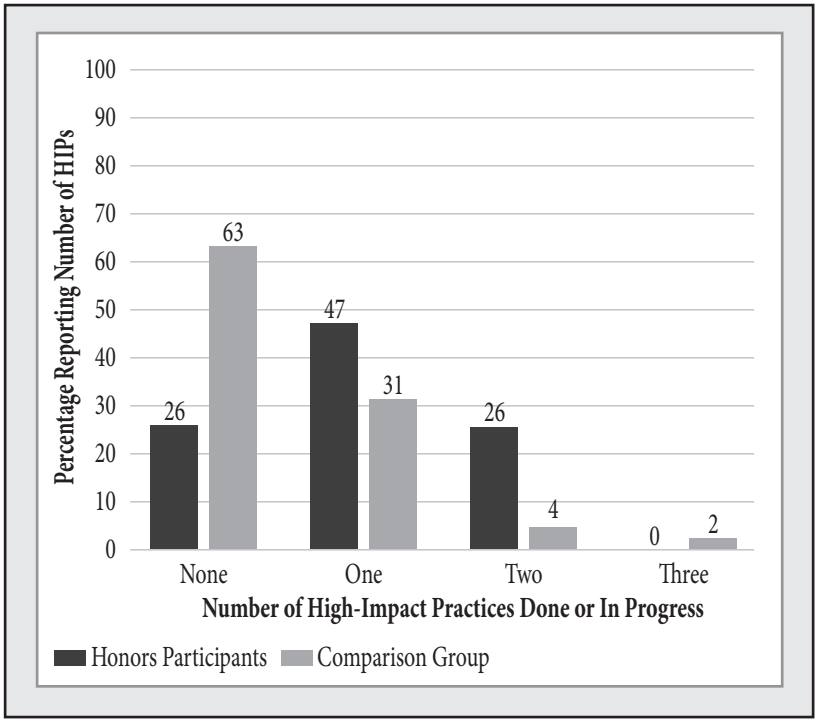


Source: National Survey of Student Engagement for Keene State College (2014 and 2016).
Note: $\chi^2 = 13.86$, df = 3, $p \leq .01$.
Results are for those responding to a question prompt asking about "Learning Community or Some Other Formal Program Where Groups of Students Take Two or More Classes Together." There were 19 honors participants, and there were 83 students in the comparison group.

Discussion

Honors and comparison group differences in response frequencies for NSSE items provide some evidence that honors program participation may increase student involvement in HIPs. When compared with comparison group responses, honors participants were more likely to participate in learning communities and other HIPs during their first year of college. In addition to providing a means for explaining the program's impact on retention, Kuh's (2008) research on HIPs also suggests that such practices can increase graduation rates. It is possible, however, that students with an interest in participating in HIPs may also be interested in and qualified for the honors program. Therefore, additional research

Figure 3. Number of High-Impact Practices "Done or In Progress" for Honors Students and the Comparison Group



Source: National Survey of Student Engagement for Keene State College (2014 and 2016).
Notes: $\chi^2 = 15.43$, df = 3, $p \leq .001$. There were 19 honors students, and there were 83 students in the comparison group.

is needed that surveys incoming honors and high-achieving non-honors students regarding their intention to take part in each of the HIPs examined in the NSSE. Responses to such measures could then be entered into a logistic regression equation to determine if honors participation accounts for a significant portion of HIP variance when controlled for pre-existing intent to participate. Additional research that follows honors students and similarly prepared non-honors students until they reach graduation is also needed. A longer time frame would also enable researchers to determine if this HIP effect persists until college graduation.

IMPACT OF THE HONORS PROGRAM ON STUDENT ENGAGEMENT

Finally, we used qualitative data to explore further the ways in which the honors program encourages student engagement. We tested the hypotheses above using quantitative data on student retention and involvement in HIPs. A limitation to this methodology is that the findings do not provide evidence that outcome differences between participants and non-participants are directly attributable to the courses and policies of the college's honors program. The retention and HIP differences could stem from differences in courses taken outside the program or in extracurricular involvement. In this final section, we used qualitative analysis of program documents to study how honors program curriculum and instructional practices may specifically contribute to retention and student engagement. The Keene State Honors Program is characterized by several benefits as well as required components, including a first-year honors course, extracurricular events, priority registration, and a common residential living community. This portion of the study looks at how faculty and students contribute to an experience that may strengthen relationships among participants in their first two years.

Method

We conducted a qualitative review of honors program documents from 2013, 2014, and 2015. These documents included

honors council meeting minutes, honors course syllabi, open-ended responses to questions on student satisfaction surveys, documentation of honors student activities, and events publicized on our campus website. We received approval from the campus Institutional Review Board to read and review these documents. From this review, we identified several components of the program that may shed light on higher retention and stronger student involvement for honors students early in their college experience.

Results

Research Question 3 asks: "Which of the enriching educational opportunities offered by the honors program have an impact on students?" Qualitative data allowed us to explore the answer to this question.

First-Year Honors Course and Honors Housing

In June 2013, the incoming program director invited faculty to attend a workshop to discuss their experiences teaching in the honors programs and their plans for the coming year. As Schuman (2006) advised in his handbook for honors program directors, honors programs need the very best faculty who will work with students effectively (see 27–28). When asked why they teach in honors, the professors said that they developed partnerships with the students, which created a more democratic classroom. They spent less time dictating rules and more time collaborating. The faculty also reported that they wanted to recapture the feeling of working with academically motivated students, to travel with students, to develop and enhance their research trajectory, to teach innovative material, to try new teaching and learning strategies, and to connect students to opportunities that they thought would benefit them.

Faculty spent considerable time discussing what should be common experiences in the honors course electives. The topics that the group discussed were using active learning strategies, assigning comprehensive readings, allowing students to show class leadership with presentations throughout the semester, engaging in critical

dialogues, and making clear behavioral expectations for both students and faculty.

In the fall of their first academic year, honors program students lived together and experienced the honors curriculum as a cohesive group. All Keene State students, including those in honors, must complete an introductory integrative studies course focused on thinking and writing in either the fall or spring semester. Keene State College designed this course as part of a general education requirement that included writing in stages, peer review, and individual conferences with the professor. The honors version of the course is offered only in the fall, and has had a profound impact in shaping students' identity as honors-level learners because they take it at the beginning of their college experience. Moreover, the honors students have been living in honors housing together, making it easier for them to talk about their coursework outside of class and enhancing social connections among students. In essence, combining the course with a living-learning experience provided a ready-made mechanism for students who were seeking ways to connect on an intellectual level with other students outside of the classroom. That the resident assistant, typically an upper-level honors student, plans extracurricular events to bring students together for a faculty panel, speaker, or theater performance enhances the experience of students living, working, and studying together.

In 2013, for example, the theme for the introductory course focused on readings and discussions of how young people encounter adulthood. The syllabus described assignments that students would complete as they worked toward writing a substantial research paper focused on a creative and multifaceted analysis of the transition to adulthood. Examples of topics that students wrote about included the meaning of maturity and responsibility, rites of passage in indigenous societies, emotional intelligence, and emotional literacy.

In the spring of their first year, many students enrolled in more than one honors course in order to accelerate progress toward fulfilling their honors program requirements. Often they were encouraged and mentored by professors during small group

advising sessions. They also were likely to have individual conversations with their honors resident assistant and the program director before enrolling in classes. Honors students benefitted from both general and focused advising in their first year.

Syllabi of elective honors courses in the sciences, social sciences, arts, and humanities were specifically designed to encourage experimentation with new subject areas. For example, in a single semester Keene State offered first- and second-year honors students elective courses in astronomy, immigration, and intercultural communication. The syllabi contained language that conveyed common outcomes to students: their goal would be to demonstrate "an ability to transcend boundaries between experiential and classroom learning" and "an ability to reflect upon and take responsibility for their continuing intellectual development." Professors constructed their own courses as they wished. There was no official template that honors courses were required to follow; however, the written materials students received from honors professors conveyed a seriousness of purpose, a lengthy reading list, and a strong statement about classroom comportment and expected work ethic. During meetings of the Honors Council, a faculty body that provides oversight of the program, faculty members regularly addressed this important question: "What makes a course an honors course?" Each year the director issues a call to faculty members to join the Honors Council. The director also meets with prospective instructors who self-select to discuss how they might reframe an existing course or design a new experimental course for the honors program.

Learning Communities

The concept of learning communities is a HIP that closely follows the philosophy and mission of colleges and universities with traditional-age students who live on campus. Bringing aspects of students' social and academic lives together on a residential campus is one strategy to improve retention and success while enhancing the overall college experience.

When the honors program was first designed at this institution, attention was given to the overall experience of the students,

especially since faculty tended not to know the details of what goes on during the evenings and weekends beyond a general awareness of student parties and hall activities that occasionally include faculty participation. In the early years of the honors program, the living and learning component was embedded into an existing residential program that created "parliaments" or specific areas in residence halls where students would choose to live together based on a common interest that could be academic, such as women's and gender studies, or service-based, such as Habitat for Humanity. These communities were supported by programming and events that were largely planned by students, and their success was perceived as uneven and dependent on the energy and motivation of the particular students involved in a given group. The "honors parliament" was distinctive because this choice of residence and room assignment was made for students after they applied and were accepted into the honors program. All first-year honors students were expected to be part of the honors parliament. Occasionally, students would request an exception to the residential component. Sometimes, an honors student who met a new friend during orientation or an athlete who would prefer to live with a teammate would ask to live somewhere other than the honors house. These requests were generally not granted. Exceptions were made only for commuter students who opted to live at home during the first year. It is likely that some students did not join the honors program because of this requirement. Overall, however, the living experience of first-year students created the space for long-lasting friendships to flourish among students with common interests and goals.

One improvement that brought stability and consistent programming to the honors parliaments was having an upper-class member of the honors program serve as a resident assistant. Resident assistants also coordinate events such as outings to the theater followed by a panel discussion that includes honors faculty or evenings with the global education office staff, who share information and answer questions in the residence halls about study abroad opportunities prior to the application deadlines. The resident assistants help students deal with the travails and challenges of living in a residence hall and taking challenging honors courses.

In other words, resident assistants exercise their creativity and expertise in young adult development to bring together groups of students for a common purpose.

Establishing strong connections among honors students, staff, and faculty in the first year of the program was beneficial. Prior to spring and fall registration, for example, the honors director and sometimes honors faculty members would visit the common space for individual or group advising meetings. These efforts paid off in helping to remind students of the courses available, encouraging students to speak with each other, and allowing the honors director to hear student concerns and recommendations for future courses. Given the small size of this honors program, this one-on-one communication was valuable, yet it required a great deal of effort on the part of the director to respond to individual scheduling needs. These encounters and activities helped to build an allegiance to the program capable of withstanding the heavy demands and workload that students faced as they progressed through their upper-level courses, embarked on internships, embraced study abroad, and pursued research opportunities. Academic enrichment opportunities and residential life in higher education need not be mutually exclusive. On our campus and many others, these types of learning experiences were wisely extended to non-honors and honors students alike, creating close, supportive relationships that improve retention and graduation rates for the entire student body.

Discussion

The Keene State College Honors Program purposefully integrates HIPs and best practices into its honors curriculum through both the design of its courses and its living-learning community component. Honors courses at Keene were designed specifically for this group of high-performing students. Experiential learning was integrated with traditional classroom instruction, and students were encouraged to accept personal responsibility for their education. In addition, through establishing learning communities where students reside together, students were able to apply outcomes from extracurricular activities to classroom curriculum, which results in

a richer overall academic experience. Although this arrangement did not eliminate the possibility that non-honors experiences could account for differences observed between participants and non-participants, it did provide evidence consistent with the idea that program elements directly contribute to increased retention and HIP participation.

Although Research Question 3 focused on aspects of the honors program and not on the experiences of the general student body or a comparison group of high-achieving students, drawing some inferences about the student experience on a college campus made up of several thousand undergraduate students is possible. While most of the general student body enrolled in introductory "Thinking and Writing" and "Quantitative Literacy" courses, the sequencing of first-year courses was not intentional, nor were advisors able to match courses to students' needs until very recently. In contrast, the honors program has become a model for the entire campus. Beginning in 2016, a new student residence was opened that was designated for living and learning communities. All students were extended opportunities to select rooms in this dedicated space and to enroll in courses based on academic interests and themes. No evaluation of this model has been completed; however, as this model becomes established, opportunities to measure its impact on students' persistence throughout their college careers and its effects on the larger campus environment will certainly be pursued.

GENERAL DISCUSSION AND CONCLUSION

This study examined outcomes associated with participation in an honors program at a small public liberal arts college. Among the most noteworthy of the outcomes examined was a significant increase in retention. Honors students were more likely to be retained for a second year than were comparable non-honors students. A second major finding was greater involvement in HIPs among honors participants than that reported by comparable non-honors students. Given Kuh's (2008) finding that HIP participation contributes to retention, greater HIP participation among honors

students may have contributed to the higher retention observed among honors students.

Nevertheless, because the quantitative component of this study did not utilize random assignment and a controlled experimental design, it is possible that differences between honors and non-honors students in coursework, extracurricular involvement, or some other factor could account for HIP and retention differences between the two groups. Although eliminating that possibility was beyond the scope of this study, the qualitative analysis of the program documents identified aspects of the curriculum and the learning community experience that promote HIPs, thus providing evidence that at least a component of the group differences in the outcome measures can be attributed to programmatic elements.

Additional research on the outcomes of participation in a small honors program is needed to build upon the findings of the present study. Four specific approaches could yield important findings. First, because Kuh's (2008) research on HIPs indicates that they contribute to both retention and graduation rates, parsing graduation data from honors and comparison students would be worthwhile. Second, another means of determining if program courses directly contribute to HIP participation would be to collect data from honors participants that assess their work in honors and non-honors courses. Third, the separate effects of living in a residential learning community and of the honors courses taken by first-year student participants could be examined by comparing the retention and HIP participation of three groups of students: honors students, comparison students living in a different learning community at the college, and comparison students not living in a learning community. The findings of the present study provide evidence of favorable outcomes from participation in the honors program and from specific honors program components. Although additional research is needed on the mechanisms underlying such outcomes, the current findings indicate that providing an honors program for high-performing students will yield benefits for the students who participate in it. Further, by increasing the retention of such students, honors programs will benefit the colleges and universities that support them.

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Demonstrating the Value of Honors: What Next?

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Our professional organization, the National Collegiate Honors Council (NCHC), has provided a good general definition of honors education while at the same time recognizing the "diversity of honors experiences across many institutions of higher learning." Here's how the definition reads, in part, from the NCHC website:

> Honors education is characterized by in-class and extra-curricular activities that are measurably broader, deeper, or more complex than comparable learning experiences typically found at institutions of higher education. (NCHC 2013)

Of crucial concern to the researchers in this collection is the qualifier that honors education incorporates practices that are *measurably* superior. And as Smith (2019) points out, "With more than 1,500 honors programs currently in operation and hundreds of millions of dollars being spent throughout American institutions, external pressure is building for accountability in honors programs" (p. 27). (See also Scott and Smith 2016.) In response to the need for

accountability, our contributors have developed research to substantiate in measurable ways the claims made on behalf of honors education and the application of what are frequently referred to as high-impact practices. No matter how convinced we may be personally that honors adds value, it is essential to ourselves as honors educators, to our students, and to the constituencies we serve, both inside and outside our institutions, that we can support what we say with data, as Savage (2019) suggests in her contribution to this collection:

> Honors education is known nationally and internationally for leadership in high-quality undergraduate programs. Honors faculty enjoy the opportunity to create unique and innovative learning environments, with academically talented undergraduate students as the immediate beneficiaries. Institutions benefit from recruitment of ambitious, motivated students who typically have higher retention and graduation rates when compared to those in the traditional student population. Yet despite these obvious institutional benefits, questions persist regarding the value that honors adds and how precisely that value is to be measured. (pp. 13–14)

That is where the scholars and researchers in our volume contribute to the discourse—asking questions about the best practices for measuring "the value that honors adds" and the most effective means of representing these findings. Research in honors plays a vital role—that is how we justify our existence, it is how we learn from our mistakes and build on our successes, it is how we enlist students into becoming active participants in their own education—by demonstrating measurably and communicating effectively the value of what we do.

To build on important work already done and to take account critically of the variables that will define honors research as we move forward, the contributors to this volume have undertaken a range of studies at institutions that differ in type from large research universities to liberal arts colleges to two-year colleges. And what

becomes clear is a consistent agreement about honors adding value, about the strategies and programs that work, and about the need for doing additional research to learn more.

What is called for, then, and what our contributors have set out to provide, is a set of well-designed retrospective studies that assess students' success quantitatively as they progress toward graduating, comparing those who have participated in honors to those who have not. This research is not easily done because of the complexity involved in making sure we are comparing students who have the same level of preparation and motivation and who share other defining characteristics—comparing apples to apples as the cliché goes. Equally important is that we understand how students' experiences are being changed qualitatively as well. Are the same practices and strategies equally effective and appropriate for everyone? Does one size fit all? Can practices be fine-tuned for different constituencies, whether defined by major or demographics or some other factors? The contributors to this monograph have set out to move the discussion of these important questions forward and also to speculate creatively as to what comes next. And what is also of critical importance is that they have undertaken to evaluate the best methods for creating and analyzing data, as well as the best means to communicate the significance of their findings.

When it comes to quantitative measures, we might start with GPA and ACT/SAT scores, but honors educators generally agree that these figures are not providing all the data necessary when making decisions about who is admitted into honors and who is not. (These parameters often become the basis for group comparisons as well after students have matriculated.) At Michigan Technological University, for example, in response to the perceived inadequacy of such measures, the Pavlis Honors College disregards traditional metrics altogether by making admission open to any student. What the Michigan Tech investigators found is that GPA was not telling them what they needed to know about measuring student performance. Their experience underscores the reasons for questioning traditional means of selecting students to join honors. What is called for, then, is perhaps a more creative way of thinking

about admissions criteria. An issue of the *Journal of the National Collegiate Honors Council* (14.2, 2013) was devoted partially to that very topic. But if we are not all going to follow the lead of the Pavlis Honors College, is there a better way of using GPA and ACT scores?

Given that these are two data points we know about a great many of our students and that there is high probability that those scores will continue to be used, is there anything of value to be learned from them? Both are retrospective at the point of a student's admission, so the question arises as to what predictive value they might have when it comes to future performance, and how the one, GPA, is related to the other, ACT/SAT. Some students' high school GPA results reflect performance above what might be expected based on ACT/SAT scores; other students perform below expectation. So, what can the relation of these two data points tell us about students once they arrive? Would it be possible to combine the two scores to produce a composite figure that might have greater predictive value of student performance over time than either score on its own? And further, might our analysis be applied proactively to predict points at which a student with a given profile will likely encounter academic difficulty, and what kinds of intervention could we make before problems occur? And since most programs and colleges use additional measures, such as essays and interviews, in making admissions decisions and when awarding merit-based scholarships, is it possible to integrate all these different metrics, and if so, how? And what role might other factors play, such as leadership experience, extracurricular activities, or athletics, in helping us understand the likelihood of a student's succeeding in honors? Clearly, there is more that we need to know.

As to what—if any—use is to be made of standardized scores, that will depend on statistical analysis of honors students and their performance, which gets at the important matter of expertise. In order to conduct the kind of evaluations proposed in this volume, somebody would need to be versed in multivariate statistical techniques, and Bottoms and McCloud (2019) point out a potential difficulty in their study:

> honors administrators, especially deans and associate deans, . . . often come from disciplines unfamiliar with multivariate statistical techniques. . . . People who are new to statistics or use them infrequently might not understand how to answer various questions using the proper analysis or the proper statistical controls. (pp. 52–53)

Given the ubiquity and—perhaps mistaken—primacy traditionally accorded to college entrance tests and GPA as measures, as well as the bragging rights attached to both by administrators when it comes to demonstrating the rigor or the quality of an honors program or college to prospective students, it is probably worth devoting some careful attention and statistical rigor to thinking through the ways these measures are to be used and of course why and how. And it is also worth giving some serious thought to explaining why such measures are lacking individually and what is to take their place. Or, for that matter, whether GPA is a useful measure at all, on its own, of students' success once they enter an honors program or college, which is a question that Meadows, Hollister, Raber, and Fiss (2019) raise in their study, proposing that "college GPA remains a limited measure of a certain type of success and that this measure is not necessarily predictive of success in postgraduate endeavors" (p. 117).

The question of which measures to use and why returns things to the matter of multivariate statistical analysis and the need for it, which is a point that Diaz, Farruggia, Wellman, and Bottoms (2019) make:

> Considerable research to date on the impact of honors education lacks the appropriate controls to account for alternative explanations for the differences often observed in the success of honors versus non-honors students. (p. 60)

The consequence is that evaluative findings suffer from serious limitations, as Cognard-Black (2019) suggests:

> Thus, the evidence most often used to demonstrate the impact of honors programs is limited because it usually

> does not account for the differences that exist between honors and non-honors students at the moment of matriculation or point of entry into honors programs. That reality makes it difficult to establish a causal connection between the honors experience and student change. . . . (p. 5)

What we want to know is the *measurable* difference made by honors programming; we want to determine which specific practices contribute to differences in the performance of comparable honors versus non-honors students, eliminating as many alternate explanations as possible. Otherwise we will find ourselves without a compelling answer to the objections that honors students are simply good students to begin with and that they would do well no matter what, honors or no honors, which makes justifying our existence at budget time a great deal harder. The contributors to this collection offer clear demonstrations of what rigorous value added analyses will require and how they can be accomplished.

The work of Spisak, Kirby, and Johnson (2019) is critical to this enterprise. They set out to address a gap in current research by evaluating the effect on academic performance of honors housing and a pre-semester elective class taken by entering honors students at the University of Iowa:

> As with first-year seminars, much scholarship exists on the effects of residence halls and living-learning communities on the success of students. . . . Little comprehensive data have been collected, however, specifically on the effects of the honors residence hall experience on students' academic outcomes. . . . (p. 153)

Based on the Iowa investigators' positive results, knowing if other, similar community-building activities might also play a role in students' academic success and whether the same results would follow at other kinds of institutions would be important.

In other words, there is much that we do not know—yet. And this same gap applies not only to quantitative analysis, but to qualitative measures as well. As Spisak, Kirby, and Johnson (2019) point out:

> It could be that orientation-like experiences benefit students in ways that are not normally tracked, such as their effect on alleviating the anxiety associated with transitioning into the university. . . . Such benefits may not always show themselves through GPAs, engagement in the program, and persistence, and yet they may well be valuable to students in other ways. . . . (p. 174)

Finally, it is not all a matter of multivariate, quantitative data. As Smith (2019) points out, a comprehensive assessment of student learning and honors value added will require "the use of both quantitative measures, such as student grades or credit hours earned, and qualitative measures, such as the review of a portfolio or capstone project" (p. 31). We have much to learn about the other ways in which honors is adding value—ways not necessarily subject to quantifiable analytics.

Meadows, Hollister, Raber, and Fiss (2019) raise this point as well in their application of the theory of "self-authorship," described by Baxter Magolda (2008) as "'the internal capacity for an individual to define one's beliefs, identity and social relations'" (quoted in Meadows et al. p. 119). Their investigation offers

> insight into the potential for a written reflection protocol to be used as an assessment for self-authorship. While more work is needed, the results shown here suggest that focusing our honors college on specific learning goals and using these as measures of success other than GPA provide a framework for our curriculum and assessment and also create an environment in which students may find a deeper connection between their self-defined future and their coursework such that GPA becomes a product of engagement with the honors college rather than a measure of potential for success. (p. 143)

Particularly suggestive here, relative to the kinds of investigations that might come next, is the connection between quantitative and qualitative outcomes, and how the one, such as GPA, might become

a product of the other, rather than being a stand-alone measure in itself. The question is what precisely the GPA is measuring and whether there might be alternative, more comprehensive means of evaluating students' performance.

Clearly, we do not know nearly as much about qualitative value added as we know about quantitative measures. For instance, it would be useful to have data showing how individual students are changed as they move through an honors curriculum, not in relation to non-honors students, but in relation to their own starting points—changes such as those suggested by the investigation of self-authorship. The study done by Smeaton and Walsh makes a valuable contribution here, relative to qualitative value added and the work they have undertaken to understand high-impact educational practices (HIPs) for undergraduates at a public liberal arts college: "through qualitative analysis of program documents, [the study] examined honors program curriculum and instructional practices that may contribute to retention and student engagement" (p. 233). Particularly valuable is their use of National Survey of Student Engagement (NSSE) data in conducting their study: "Honors and comparison group differences in response frequencies for NSSE items provide some evidence that honors program participation may increase student involvement in HIPs" (p. 241).

In this connection, the Research Committee of NCHC has proposed a step forward in partnership with the National Survey of Student Engagement (NSSE)—a partnership that allows for the addition of questions to the NSSE surveys distributed on participating campuses. A similar project is currently in development in conjunction with the Community College Survey of Student Engagement (CCSSE). The prospect of such results leads one to wonder additionally about the post-baccalaureate lives of our students and whether honors graduates become critical thinkers, find job satisfaction, or engage in lifelong learning. Are our graduates more likely to become active members of their communities? Such questions are important, as Diaz, Farruggia, Wellman, and Bottoms (2019) suggest (p. 86). But these are factors about which we know comparatively little, and, admittedly, it would be no easy matter to

develop data to answer those questions. But our mandate to make a measurable difference in students' lives surely suggests that we ought to try.

Regardless of how much good data we collect, another problem needs to be solved: how to report results in an appropriate and persuasive form. Here, we might take a lesson from English Composition 101: the usual instruction to students is that they need to know their audience if they are going to write an effective essay, particularly one that is intended to persuade. When it comes to honors and value added, not all audiences are the same; some need more complex, data-driven explanations than others. But it is probably safe to assume that starting with something simple and understandable is the best way to proceed. To that end, there are the questions of why students choose one college or university as opposed to another, and whether honors had anything to do with that choice. Simply asking what role honors has played in decision-making is easy; Bottoms and McCloud (2019) report that the University of Illinois at Chicago (UIC) asked this question of their first-year students: "'Would you have come to UIC had it not been for the Honors College?'" (p. 43). Their results prove persuasive and easy to communicate: "Fully 65 percent of all honors students and 75 percent of our most prestigious diversity scholarship students said 'no'" (p. 43). That students would not have chosen to attend a particular institution had it not been for honors is certainly strong and compelling evidence of value added. Brown, Winburn, and Sullivan-González (2019) undertake a similar analysis, and with similarly positive results at the University of Mississippi relative to the value honors adds in recruitment.

The question, then, is how to make best use of what we measurably know. The answer might be thought of in terms of value added factors, which could refer to a whole range of potential points of special pride. Imagine being able to tell prospective students and parents that an undergraduate honors student's time to degree, or cumulative GPA, or likelihood of gaining admission to graduate or professional school, or job placement is improved by a specific multiplier or value added factor. That would be a clear way

of communicating a possibly complex data analysis. Or imagine being able to tell a college or university president or the head of the development office that a positive value added factor for honors graduates can predict those who are more likely to become donors to an institution by a certain percentage. Those bits of information would all be persuasive for any honors dean or director to marshal. But like many things that may seem easy, they require a good deal of thinking ahead and planning useful assessment strategies before the occasion arises when we are called on to demonstrate the value that honors adds.

Another possibility, related to the survey of students' likelihood of choosing a particular school, is what might be called the "halo effect." As the two studies just referred to have shown, there is a halo effect relative to honors; Brown, Winburn, and Sullivan-González (2019) write: "Our data reveal the honors college to be a significant component in the decisions of Mississippi's highest-achieving students to attend the [University of Mississippi]. One significant additional consequence is that attracting outstanding students from other states has a strong impact on the diversity of the university student body" (p. 190). Those results are suggestive of what more we have to learn and whether similar instances of the honors halo effect might exist on other campuses. The better we understand the appeal of honors—the halo effect—the better able we will be when it comes to targeting recruitment efforts to specific student populations, quoting again from Brown, Winburn, and Sullivan-González (2019):

> Students who apply to the honors college may well possess traits that differentiate them from their academically similar counterparts who do not apply, and these traits may be related to retention. At the same time, however, it is also likely that the honors environment that attracts these students in the first place is also successful in providing them with an academic experience that fosters the intellectual and personal growth that they seek and that the honors environment and experiences translate into increased academic success and retention. (p. 198)

As this conclusion suggests, we need to know more about the students who choose honors and their motivations for making that decision as well as more about how they compare with students not in honors.

The halo effect might well extend to those other, non-honors students as well. For example, does the existence of a high-profile honors program or college demonstrably contribute to an institution's overall prestige and recruitment potential? Given the remarkable growth in honors education, particularly the growth in the number of honors colleges (Scott and Smith 2016), is there a correlation between the inception of an honors college at a particular institution and positive changes in the demographics of applicants overall? Even if a student does not choose honors, does the existence of a high-profile honors program influence student decision-making generally? That would be interesting to know. And is there a halo effect when it comes to establishing a critical mass of engaged honors students, which is a question suggested by the work of Spisak, Kirby, and Johnson (2019) in their study of residence halls and pre-college experiences? At what point, and in what measurable ways, might the presence of a specific population—a critical mass—of engaged honors students begin to produce added value above and outside of the programmatic elements that bring them together? How many students are needed to constitute a critical mass, and is it the same for all types of institutions? And do all students benefit equally, STEM students versus humanities majors, for instance? Do our practices benefit students equally regardless of their level of preparation and motivation? And is the honors offer equally attractive across differences of demographics? And if not, how do we make up for the deficits?

Of particular interest here is the student invited into honors who declines the invitation; Honeycutt (2019) points out:

> Honors programs would benefit from future research studies designed to discover why the majority of students eligible for community college honors choose not to participate, particularly given the potential benefit to at-risk students. Specifically, a comparative analysis of honors participants

> and honors-eligible non-participants across income and parental education levels would improve our understanding of why some students choose to take the honors challenge and why others decline. (p. 220)

Do similar patterns exist across the board at different kinds of institutions? And are all students who decline the invitation the same? Or are there differences with respect to demography, academic major, and STEM versus non-STEM, and what about measures such as academic preparation and motivation? Is there any relation between a student's likelihood of declining and the potential benefit of the program? In other words, are students who stand to benefit the most possibly the most likely to decline honors? That information would be important to know. How do we understand their decision-making, and how do we use evidence relative to retention, academic performance, and graduation to persuade those students of the value of honors?

To better understand these variables, Honeycutt's study (2019) uses propensity score analysis as a useful analytical tool: "The propensity score signified the probability that an honors eligible student will enroll in honors based on . . . 13 observable covariates, which represented the predictors" (p. 213). The 13 covariates include such data points as high school GPA, dual enrollment status, ACT scores, income level, first-generation status, age, and gender (pp. 210, 213). Honeycutt offers the following practical conclusion relative to the use of positive benefit factors that might persuade a student to choose honors:

> Students often hesitate to take the honors challenge, perhaps because they do not possess accurate information about the benefits of honors. . . . In particular, high-achieving at-risk students should be carefully informed of the benefits: higher course grades, higher GPAs, and higher graduation rates, even when controlling for baseline differences between honors and eligible non-honors students. When honors program directors request a list of eligible students, that list could include more comprehensive data

> on eligible students, such as socioeconomic status, first-generation status, and veteran and disability status. With this additional information, honors directors can develop a more nuanced outreach. (pp. 218–19)

We might reasonably ask what qualitative data we could bring to bear relative to a student's experience and how honors makes that experience more satisfying and worth pursuing across a range of differences that characterize our students, including veterans and students with disabilities.

Implicit here is a highly suggestive point about honors and diversity. As Brown, Winburn, and Sullivan-González (2019) have shown, honors helped achieve geographic diversity at their institution. And Honeycutt's study suggests a strong, positive role that honors might play in strategically recruiting and graduating at-risk students. Diaz, Farruggia, Wellman, and Bottoms (2019) make a similar point with respect to underrepresented students:

> this study shows that honors education has a statistically significant positive effect on student success above and beyond all other background characteristics studied. . . . Furthermore, and of great importance in a nation where a significant gap in the success of underrepresented students versus others exists, we found that the positive effects of honors college membership were more pronounced for African American and Latino/a students for some indicators of success. (p. 79)

Not only does honors work, with measurable positive benefits, it works particularly well for certain populations of students.

Thus, when it comes to promoting diversity, honors is anything but an extravagance or an elitist enterprise. On the contrary, honors is a driver for achieving positive results, and the more students who take part, the greater the benefit. That insight leads to the quite reasonable conclusion proposed by Patton, Coleman, and Kay (2019):

> The data collected here [from Eastern Kentucky University] 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 impact 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 . . . [,] making the case to high-level university administration that honors education positively impacts these metrics [such as retention and graduation rates] for its students is extremely beneficial for honors deans and directors. (pp. 110–111)

In this context honors clearly becomes a laboratory for testing best practices, finding out what works and what does not work, and then sharing results to promote better outcomes for all our students.

Relative to their program and the application of lessons learned beyond the honors population, Smeaton and Walsh (2019) point out that "the honors program has become a model for the entire campus" (p. 248). There is much to be said for making friends by sharing rather than hoarding successful high-impact practices and thus countering the frequent objection that honors is an elitist undertaking not relevant to the experience of most students or faculty. Not every student is going to be in honors, or want to be, and the same holds true for faculty, but what can we do, what practices can we share, to make life better for everyone? Although the pieces in this collection concentrate on student success, it will be important for future work to ask questions about the value that honors adds for faculty development and retention and the role honors programs and colleges can play in promoting curriculum development and helping to achieve institution-wide learning outcomes. In other words, measuring the value that honors might add needs to happen in a variety of areas and contexts.

When it comes to institution-wide benefits, some honors practices are labor-intensive and expensive, relatively speaking, but others are less so. For example, living and learning communities can be created by mobilizing existing resources and following honors models to deliver a positive benefit to a larger population.

What we could use more of at this point is a kind of bottom-line thinking and self-representation. If our high-impact practices produce positive results—particularly with respect to such measures as retention, credit hours passed, bounce-back from probation, and time to graduation—is it possible to translate those outcomes into dollars and cents? If we can workshop ideas to improve retention generally, for instance, or to decrease a student's time to degree, what do these mean with respect to tuition dollars paid back to the institution or savings to students and parents achieved by decreasing the time an undergraduate spends paying for a degree? And what about students who join honors in progress? Often, programs and colleges offer more than a single kind of honors regimen, with tracks that are not mutually exclusive: one, a comprehensive, generalized track that begins in the first year and continues through to graduation; and another, discipline-specific track that leads to honors distinction in a major. Are there value added benefits particular to students who are not enrolled in honors from first year through graduation, and how does their performance compare with other students—those not in honors, or those who complete a full honors curriculum? Are the benefits of honors participation cumulative? The findings of Diaz, Farruggia, Wellman, and Bottoms (2019) are suggestive at this point:

> although honors college participation at any point in the students' college careers led to a higher chance of graduating in four or six years, the more time students spent in this honors college, the more successful they were in terms of the likelihood of graduating. (p. 84)

And what do we need to know about value added and students who matriculate by way of transfer agreements that link two-year to four-year institutions? How are high-impact practices best shared across those institutional boundaries?

As this brief review and the papers assembled here make clear, we know a good deal already. At the same time, we still want to know even more. To that end, the present collection is an invitation to further research rather than a last word. For instance, as Bottoms

and McCloud (2019) point out, even though analyses provide evidence of the effectiveness of honors, a number of questions remain:

> even though the analyses support the contention that honors education is effective, they do little to explain why. . . . Further, it is important to identify which practices are best for which students. This information could lead to understanding why the effects of honors experiences are stronger for students of some races/ethnicities compared to others. (pp. 51–52)

Recognizing why honors programs work the way they do, Diaz, Farruggia, Wellman, and Bottoms (2019) provide useful suggestions for further investigation:

> Future research could expand the definition of student success to include elements such as lifelong learning, later-life civic engagement, graduate and professional school matriculation and success, or career development, and it could begin to tease apart the various features of the honors experience that contribute most to student success, with qualitative and quantitative methods. Future research should also continue to identify factors that explain student success of both honors and non-honors students. (p. 86)

And it is not just honors students and faculty that we need to study and learn more about; there are honors administrators as well, which is a point that emerges from Smith's study:

> only 31 percent [of survey participants] say that outcomes assessment data are actually being used to guide the majority of program changes. This finding demonstrates that honors deans and directors are struggling to apply the skills they have to "close the loop" and effectively apply assessment practices for the process of continuous improvement. (p. 37)

In other words, we have plenty of good and interesting work ahead of us, which will call for creative collaborating and coordinating among colleagues, the Research Committee, and our NCHC office

as we take our next steps. By way of a conclusion, which is really more of an invitation, we offer the following ideas for what to do next, given what we now know and what we want to know.

1. Create an online means for honors researchers to make others aware of ongoing research in order to share results and collect data across institutions.
2. Explore the possibility of creating a web location sponsored by NCHC for working papers that report results and share ideas quickly, with the end goal of formal, peer-reviewed publication.
3. Pursue collaborations with the Center for Postsecondary Research (which administers the NSSE), the Center for Community College Student Engagement (which administers the CCSSE), and other higher education researchers; gather results; and expand qualitative analyses to support quantitative studies.
4. Explore the possibility of an experts-on-demand resource to provide deans and directors who are not experts in multivariate analysis the help they need.
5. Create an online toolkit for honors researchers, particularly those new to their jobs, to provide show-and-tell advice about presenting what we know and how best to communicate results; make a part of that toolkit best-practices applications that can readily be deployed.
6. Make sure that colleagues are aware of NCHC resources for finding and contributing to research: *JNCHC*, *HIP*, and the National Collegiate Honors Council Monograph Series; and share information about accessing NCHC's searchable indices as well as other searchable databases relevant to honors research.
7. Invite fellow researchers to help us learn more about
    a. GPA and ACT/SAT scores, and what if anything we have to learn from these measures;

b. Honors completion, and why/when students stop working toward honors graduation requirements;

c. Honors advising and how we measure success;

d. Qualitative value that honors adds to students' lives and experiences after they graduate;

e. Two-year to four-year transfers and how to manage them;

f. Honors populations we want to know more about, such as veterans, students with disabilities, etc.;

g. The value that honors adds for faculty relative to retention and faculty development;

h. Honors as a driver for curriculum development; and

i. Honors administrators and best-practices.

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APPENDIX

ORIGINAL CALL FOR PROPOSALS

Call for Paper Proposals

Research on the Benefits of Honors Program Participation

NATIONAL COLLEGIATE HONORS COUNCIL
MONOGRAPH SERIES

Deadline for Submissions: **May 1, 2017**
Direct Submissions and Inquiries to: Dr. Jerry Herron, jerry.herron@wayne.edu

At this time, we invite submission of proposals for an upcoming volume featuring new empirical research exploring the value added of honors program experience, to be published in the National Collegiate Honors Council Monograph Series in 2018. It is now routine for many in honors administration to offer student accomplishments vis-a-vis those of non-honors students as evidence that honors programs are successful, vital components of the colleges and universities where they are housed. Many programs can show that their honors students graduate at higher rates than non-honors students, that they graduate sooner, that they graduate with higher GPAs, that they are more likely to go on to graduate and professional school, and that they win prestigious fellowships at higher rates. Most honors students, however, are starting at a different place than students in the general student body because admissions processes for most honors programs and colleges ensure that unusually smart, talented, and highly motivated students enter their programs. Thus, the evidence often used to demonstrate the success of honors programs is limited because it does not statistically control or otherwise account for the differences that exist between honors and non-honors students at the moment that they matriculate and enter into honors programs. We seek projects using methodologically rigorous approaches to disentangle the effects of honors program participation from baseline student characteristics, but we also encourage researchers using qualitative or mixed methods approaches to illustrate in creative ways the unique effects of the honors program experience and how the criteria used for selecting honors students might

themselves be interrogated. We especially encourage proposals that also address any varying effects of the honors experience for those with different gender identities or for first-generation students, racial or ethnic minorities, or other groups that face unique challenges in higher education. Proposals should include detail about the sources and kinds of data used; verification, when necessary, that appropriate IRB approval has been secured before collection or use of data; what research method(s) will be employed; what stage of development the project is in currently; and either actual or expected findings from the research. Those wishing for their work to be considered for inclusion should submit proposals of 250–500 words by **May 1, 2017**; manuscripts for accepted proposals will be collected in October 2017, with anticipated publication in 2018. Send proposals to Dr. Jerry Herron, Dean of Honors College, Wayne State University (email: jerry.herron@wayne.edu). Address inquiries to the same. www.nchchonors.org/monographcall

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ABOUT THE NCHC MONOGRAPH SERIES

The Publications Board of the National Collegiate Honors Council typically publishes two to three monographs a year. The subject matter and style range widely: from handbooks on nuts-and-bolts practices and discussions of honors pedagogy to anthologies on diverse topics addressing honors education and issues relevant to higher education.

The Publications Board encourages people with expertise interested in writing such a monograph to submit a prospectus. Prospective authors or editors of an anthology should submit a proposal discussing the purpose or scope of the manuscript; a prospectus that includes a chapter by chapter summary; a brief writing sample, preferably a draft of the introduction or an early chapter; and a *curriculum vitae*. All monograph proposals will be reviewed by the NCHC Publications Board.

Direct all proposals, manuscripts, and inquiries about submitting a proposal to the General Editor of the Monograph Series:

Dr. Jeffrey A. Portnoy
General Editor, Monograph Series
Honors College
Perimeter College
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NCHC Monographs & Journals

Assessing and Evaluating Honors Programs and Honors Colleges: A Practical Handbook by Rosalie Otero and Robert Spurrier (2005, 98pp). This monograph includes an overview of assessment and evaluation practices and strategies. It explores the process for conducting self-studies and discusses the differences between using consultants and external reviewers. It provides a guide to conducting external reviews along with information about how to become an NCHC-Recommended Site Visitor. A dozen appendices provide examples of "best practices."

Beginning in Honors: A Handbook by Samuel Schuman (Fourth Edition, 2006, 80pp). Advice on starting a new honors program. Covers budgets, recruiting students and faculty, physical plant, administrative concerns, curriculum design, and descriptions of some model programs.

Breaking Barriers in Teaching and Learning edited by James Ford and John Zubizarreta (2018, 252pp). This volume—with wider application beyond honors classrooms and programs—offers various ideas, practical approaches, experiences, and adaptable models for breaking traditional barriers in teaching and learning. The contributions inspire us to retool the ways in which we teach and create curriculum and to rethink our assumptions about learning. Honors education centers on the power of excellence in teaching and learning. Breaking free of barriers allows us to use new skills, adjusted ways of thinking, and new freedoms to innovate as starting points for enhancing the learning of all students.

The Demonstrable Value of Honors Education: New Research Evidence edited by Andrew J. Cognard-Black, Jerry Herron, and Patricia J. Smith (2019, 292pp) Using a variety of different methods and exploring a variety of different outcomes across a diversity of institutions and institution types, the contributors to this volume offer research that substantiates in measurable ways the claims by honors educators of value added for honors programming.

Fundrai$ing for Honor$: A Handbook by Larry R. Andrews (2009, 160pp). Offers information and advice on raising money for honors, beginning with easy first steps and progressing to more sophisticated and ambitious fundraising activities.

A Handbook for Honors Administrators by Ada Long (1995, 117pp). Everything an honors administrator needs to know, including a description of some models of honors administration.

A Handbook for Honors Programs at Two-Year Colleges by Theresa James (2006, 136pp). A useful handbook for two-year schools contemplating beginning or redesigning their honors program and for four-year schools doing likewise or wanting to increase awareness about two-year programs and articulation agreements. Contains extensive appendices about honors contracts and a comprehensive bibliography on honors education.

The Honors College Phenomenon edited by Peter C. Sederberg (2008, 172pp). This monograph examines the growth of honors colleges since 1990: historical and descriptive characterizations of the trend, alternative models that include determining whether becoming a college is appropriate, and stories of creation and recreation. Leaders whose institutions are contemplating or taking this step as well as those directing established colleges should find these essays valuable.

Honors Composition: Historical Perspectives and Contemporary Practices by Annmarie Guzy (2003, 182pp). Parallel historical developments in honors and composition studies; contemporary honors writing projects ranging from admission essays to theses as reported by over 300 NCHC members.

Honors Programs at Smaller Colleges by Samuel Schuman (Third Edition, 2011, 80pp). Practical and comprehensive advice on creating and managing honors programs with particular emphasis on colleges with fewer than 4,000 students.

The Honors Thesis: A Handbook for Honors Directors, Deans, and Faculty Advisors by Mark Anderson, Karen Lyons, and Norman Weiner (2014, 176pp). To all those who design, administer, and implement an honors thesis program, this handbook offers a range of options, models, best practices, and philosophies that illustrate how to evaluate an honors thesis program, solve pressing problems, select effective requirements and procedures, or introduce a new honors thesis program.

Housing Honors edited by Linda Frost, Lisa W. Kay, and Rachael Poe (2015, 352pp). This collection of essays addresses the issues of where honors lives and how honors space influences educators and students. This volume includes the results of a survey of over 400 institutions; essays on the acquisition, construction, renovation, development, and even the loss of honors space; a forum offering a range of perspectives on residential space for honors students; and a section featuring student perspectives.

If Honors Students Were People: Holistic Honors Education by Samuel Schuman (2013, 256pp). What if honors students were people? What if they were not disembodied intellects but whole persons with physical bodies and questing spirits? Of course . . . they are. This monograph examines the spiritual yearnings of college students and the relationship between exercise and learning.

Inspiring Exemplary Teaching and Learning: Perspectives on Teaching Academically Talented College Students edited by Larry Clark and John Zubizarreta (2008, 216pp). This rich collection of essays offers valuable insights into innovative teaching and significant learning in the context of academically challenging classrooms and programs. The volume provides theoretical, descriptive, and practical resources, including models of effective instructional practices, examples of successful courses designed for enhanced learning, and a list of online links to teaching and learning centers and educational databases worldwide.

NCHC Monographs & Journals

Occupy Honors Education edited by Lisa L. Coleman, Jonathan D. Kotinek, and Alan Y. Oda (2017, 394pp). This collection of essays issues a call to honors to make diversity, equity, and inclusive excellence its central mission and ongoing state of mind. Echoing the AAC&U declaration "without inclusion there is no true excellence," the authors discuss transformational diversity, why it is essential, and how to achieve it.

The Other Culture: Science and Mathematics Education in Honors edited by Ellen B. Buckner and Keith Garbutt (2012, 296pp). A collection of essays about teaching science and math in an honors context: topics include science in society, strategies for science and non-science majors, the threat of pseudoscience, chemistry, interdisciplinary science, scientific literacy, philosophy of science, thesis development, calculus, and statistics.

Partners in the Parks: Field Guide to an Experiential Program in the National Parks by Joan Digby with reflective essays on theory and practice by student and faculty participants and National Park Service personnel (First Edition, 2010, 272pp). This monograph explores an experiential-learning program that fosters immersion in and stewardship of the national parks. The topics include program designs, group dynamics, philosophical and political issues, photography, wilderness exploration, and assessment.

Partners in the Parks: Field Guide to an Experiential Program in the National Parks edited by Heather Thiessen-Reily and Joan Digby (Second Edition, 2016, 268pp). This collection of recent photographs and essays by students, faculty, and National Park Service rangers reflects upon PITP experiential-learning projects in new NPS locations, offers significant refinements in programming and curriculum for revisited projects, and provides strategies and tools for assessing PITP adventures.

Place as Text: Approaches to Active Learning edited by Bernice Braid and Ada Long (Second Edition, 2010, 128pp). Updated theory, information, and advice on experiential pedagogies developed within NCHC during the past 35 years, including Honors Semesters and City as Text™, along with suggested adaptations to multiple educational contexts.

Preparing Tomorrow's Global Leaders: Honors International Education edited by Mary Kay Mulvaney and Kim Klein (2013, 400pp). A valuable resource for initiating or expanding honors study abroad programs, these essays examine theoretical issues, curricular and faculty development, assessment, funding, and security. The monograph also provides models of successful programs that incorporate high-impact educational practices, including City as Text™ pedagogy, service learning, and undergraduate research.

Setting the Table for Diversity edited by Lisa L. Coleman and Jonathan D. Kotinek (2010, 288pp). This collection of essays provides definitions of diversity in honors, explores the challenges and opportunities diversity brings to honors education, and depicts the transformative nature of diversity when coupled with equity and inclusion. These essays discuss African American, Latina/o, international, and first-generation students as well as students with disabilities. Other issues include experiential and service learning, the politics of diversity, and the psychological resistance to it. Appendices relating to NCHC member institutions contain diversity statements and a structural diversity survey.

Shatter the Glassy Stare: Implementing Experiential Learning in Higher Education edited by Peter A. Machonis (2008, 160pp). A companion piece to *Place as Text*, focusing on recent, innovative applications of City as Text™ teaching strategies. Chapters on campus as text, local neighborhoods, study abroad, science courses, writing exercises, and philosophical considerations, with practical materials for instituting this pedagogy.

Teaching and Learning in Honors edited by Cheryl L. Fuiks and Larry Clark (2000, 128pp). Presents a variety of perspectives on teaching and learning useful to anyone developing new or renovating established honors curricula.

Writing on Your Feet: Reflective Practices in City as Text™ edited by Ada Long (2014, 160pp). A sequel to the NCHC monographs *Place as Text: Approaches to Active Learning* and *Shatter the Glassy Stare: Implementing Experiential Learning in Higher Education*, this volume explores the role of reflective writing in the process of active learning while also paying homage to the City as Text™ approach to experiential education that has been pioneered by Bernice Braid and sponsored by NCHC during the past four decades.

***Journal of the National Collegiate Honors Council* (*JNCHC*)** is a semi-annual periodical featuring scholarly articles on honors education. Articles may include analyses of trends in teaching methodology, articles on interdisciplinary efforts, discussions of problems common to honors programs, items on the national higher education agenda, and presentations of emergent issues relevant to honors education.

***Honors in Practice* (*HIP*)** is an annual journal of applied research publishing articles about innovative honors practices and integrative, interdisciplinary, and pedagogical issues of interest to honors educators.

UReCA, *The NCHC Journal of Undergraduate Research and Creative Activity*, is a web-based, peer-reviewed journal edited by honors students that fosters the exchange of intellectual and creative work among undergraduates, providing a platform where all students can engage with and contribute to the advancement of their individual fields. To learn more, visit <http://www.nchc-ureca.com>.

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About *The Demonstrable Value of Honors Education—*

"We all know—instinctively, experientially—that what we as honors teachers and administrators do for our students adds value to their college education and general college experience. Providing hard, demonstrable evidence for that which we know in our bodies as it were . . . turns out not to be so easy, a fact anyone who has had to make the case for additional, or even simply continued, honors funding to a new dean or college president has likely encountered. The results presented in this volume provide, in a diversity of ways via a diversity of research approaches, the sorts of evidence honors teachers and administrators have long needed. Will that evidence be enough to convince every dean or college president of the need for continued honors sustenance? The answer may have to depend on the particular dean or president in question. I believe the essays in this monograph provide the strongest case for the added value of honors that has been made to date."

—Dr. Rusty Rushton
University of Alabama at Birmingham

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