Fostering Intellectual Curiosity through Undergraduate Research and Creative Activities

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Authors’ Note

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Abstract

Undergraduate research has been identified as a high-impact practice to improve student success, learning, and retention (Kuh, 2008). George Mason University’s Students as Scholars initiative engages in extensive faculty and curriculum development across disciplines to build a culture of inquiry and authentic scholarship for undergraduates. Through program and learning outcomes assessment, we have learned that curiosity is a primary motivator for students’ decision to participate in undergraduate research, and it seems to drive them to continue their inquiry beyond college. Our paper asks: What role does curiosity play in the motivation to participate and persist in undergraduate research? How can the university create an environment that nurtures and rewards curiosity? We operate with the assumption that curiosity is both innate and can be nurtured from the individual’s environment; we believe that nurturing this curiosity is an essential role and key responsibility of the university. While undergraduate research is typically considered to be a primarily academic pursuit, there is great potential in academic-student affairs collaborations for fostering intellectual curiosity both in and outside of the classroom, and that these intentional partnerships can create “seamless learning environments” to support positive student development. This paper uses existing survey research and interviews with students to understand how curiosity drives students to do undergraduate research, and proposes collaborative solutions for student development in this arena.

*Keywords:* curiosity, student development, undergraduate research
Extensive scholarship exists on who comes to college, how they get here, why they stay or leave, and what they get from a college education. The current national discourse focuses on how graduates are being prepared for the workforce, and whether college is worth the investment of time and tuition dollars. There is substantial evidence that higher education is essential to one’s future, and universities are unquestionably engaged in helping students prepare for a life beyond college. While college students undoubtedly keep an eye to their future careers, most of them arrive with more on their agendas. We join Virginia Tech (Division of Student Affairs, 2014) in believing that there is a more fundamental drive to higher education: the pursuit of knowledge from a place of enjoyment, curiosity, or “drive to know” (von Stumm, Hell, & Chamorro-Premuzic, 2011, p. 576). Students who are curious tend to experience higher levels of engagement and satisfaction with their education (Hulme, Green, & Ladd, 2013). They seek out intellectual challenges and are more likely to be comfortable with uncertainty and some kinds of risk-taking. Curiosity is likely to be a primary motivator for undergraduates to engage in research or creative projects, especially if it means pursuing a path to new discovery or adventure.

In this paper, we use interviews with undergraduate researchers to begin an exploration of the following questions: What role does curiosity play in the motivation to participate and persist in undergraduate research; and how can the university create an environment that nurtures and rewards curiosity? Through our inquiry into these questions, we hope to spark conversation and further inquiry on this subject. Readers will be introduced to some of what is known about intellectual curiosity and its role in motivating student behavior; explore a possible future for academic-student affairs collaborations for nurturing intellectual curiosity and supporting undergraduate research initiatives; and consider how to help students make meaning of their
experiences to be able to apply their learning across various domains, with the ultimate aim of fostering lifelong curiosity. We operate with the assumption that curiosity is both innate and can be nurtured from the individual’s environment. We believe that nurturing this curiosity is an essential role and key responsibility of the university.

**Literature and Context**

**Curiosity**

Curiosity has long been the subject of scholarly attention. Psychologists, philosophers, and scientists have debated what curiosity is, how one becomes curious, and how curiosity relates to things like risk-taking, achievement, and anxiety. Scholars have debated how to define curiosity, but most definitions essentially focus on “a desire to know, to see or to experience” (Litman, 2005, p. 793). Scholars have identified two types of curiosity: *diversive*, the need to avert boredom; and *specific*, the need for information to understand an experience (Loewenstein, 1994). Curiosity has been conceptualized as an internal drive, like hunger, pushing us to explore (Leslie, 2014). Curiosity might be motivated by pleasure or sensation seeking, such as the need for change or adventure (Mason, 2008). The diverersive desire for new experiences can be cognitive or physical, and becomes a drive to relieve boredom or restlessness. Sensation seeking, in turn has been linked to strong memory, high ability to focus attention on a task, and generally high aptitudes for learning (Mason, 2008). While some believe that curiosity is primarily an innate personality trait, others believe that curiosity can be nurtured in the environment. Factors that enrich the environment such as education and exposure to new stimuli can inspire people to seek more knowledge. Exposure to an information-rich environment, and thus, a higher potential to become curious has been linked by some authors to social class (Leslie, 2014).
Loewenstein (1994) proposed that it is not a simple desire for knowledge and experience that drives us, but it begins with some knowledge and grows with the realization that we have “an inconsistency or a gap” (p. 87) in our understanding. It is difficult to ask questions about a subject that we know nothing about—where do we begin? When we have some exposure to a subject, we can more easily engage in exploration about it. Loewenstein saw the dissatisfaction, anxiety, or frustration with this “information-gap” as the source of curiosity. Leslie (2014) suggested that when we find a field of study in which we will “never get to the end of our ignorance” (p. 46), this may become our life’s passion.

**Undergraduate Research**

Intellectual curiosity has been empirically linked to higher academic performance and higher satisfaction with the university experience (von Stumm et al., 2011). Not surprisingly, students who participate in undergraduate research are more likely than other students to possess intellectual curiosity, as well as be open to new ideas, and feel more confident in solving problems independently (Bauer & Bennett, 2003; Webber, 2012). These students are also more likely to be “aware of learning as a life-long process” with “more complex assumptions about knowledge” (Baxter Magolda, Boes, Hollis, & Jaramillo, 1998, p. 1). Considered to be one of the ten “high-impact educational practices” that have been shown to provide significant benefits to students (Kuh, 2008), undergraduate research offers students the opportunity to develop higher-order thinking skills such as critical thinking and synthesis. As a high-impact practice, undergraduate research can facilitate “deep and transformative learning” (Wawrzynski & Baldwin, 2014, p. 54) that helps students gain a more complex understanding of themselves and their position in the world. Undergraduate research may be especially impactful for students in
underrepresented racial and ethnic populations, contributing to improved grades, retention rates, and acceptance into graduate programs (Bauer & Bennett, 2003).

**George Mason University and Students as Scholars**

George Mason University (Mason) is a public, majority undergraduate research university (high research activity) located in the metropolitan DC area of Fairfax, Virginia. More than 198 degree programs serve a diverse population of 33,000 students (20,000 undergraduate) at four distributed campuses. In 2009, Mason adopted a university-wide initiative to improve student success through increased participation in and celebration of undergraduate research and creative activities. *Students as Scholars* is transforming undergraduate education to address essential learning outcomes at three developmental levels: Discovery, Scholarly Inquiry, and Creation of Scholarship. Through research courses and experiential learning opportunities, about 6,000 students each year learn about the processes of discovery, including how to develop scholarly questions, use appropriate research methods, engage in ethical practice, and situate scholarly work in a broader context. The 900 students each year who participate in advanced research courses and in the mentored Undergraduate Research Scholars Program (URSP) conduct an original scholarly or creative project that they share in on-campus, regional, and national conferences.

**Methods**

The research for this paper is part of a comprehensive, ongoing project to assess the program impact and learning outcomes of the *Students as Scholars* initiative at Mason. For this paper, we rely primarily on recent interviews of selected students. Brief demographic and survey data are used to provide context for the findings from the interviews. Demographic data are from institutional data sources. Survey data are from the OSCAR Student Survey, a locally developed
instrument that assesses individual response to the *Students as Scholars* student learning outcomes. Five items ask students about their motivations for participating in undergraduate research, and their attitudes and opinions about research and creative activities. These items are used to provide context to better understand the unique characteristics and experiences of the study’s participants. Data are derived from the academic years 2012-2014.

Semi-structured interviews were conducted with 14 students who had participated in the Undergraduate Research Scholars Program (URSP) in the past year. Participants gave informed consent as approved by the George Mason University Institutional Review Board. Interviews were conducted face-to-face, or by Skype or phone, and lasted approximately one hour. Interviews provide an open space for participants to express their knowledge, opinions, and concerns in their own words (Esterberg, 2002). We found that this was particularly critical because we have no other source for in-depth insight into the student experience. Interviews were based on a guide that started the conversation, and then allowed the conversation to be more or less led by the participants (Merriam, 2009). (See the interview guide in the Appendix.) All interviews were recorded with a digital voice recorder and transcribed manually. Interviews were analyzed for themes and response patterns that emerged from the conversations (Esterberg, 2002).

**Findings and Discussion**

**Participant Demographics and Survey Responses**

**URSP students.** In academic years 2012-14, a total of 203 students participated in the URSP. These students were 61% women, and had an average GPA of 3.6. The group consisted of 57% White students, 16% Asian or Pacific Islander, 7% Hispanic, 5% Black, 4% two or more races, and 3% international students (about 7% of students did not report race). These numbers
essentially parallel the university’s undergraduate population, although URSP students are a bit more likely to be White and female. URSP students were most likely to major in a STEM (49%) or social science (32%) field, with smaller groups representing the Humanities (8%), Health (4%), Business (3%), and the Arts (1%).

**Survey responses.** We compared responses to the OSCAR Student Survey between the 138 URSP students and the 357 students who were enrolled in Research and Scholarship Intensive (RS) courses—advanced research courses that are developed through the *Students as Scholars* curriculum development efforts. These courses enroll the most comparable population to the URSP. While the responses for both groups showed parallel trends, significant differences between the groups on most of the measures suggest that URSP students overall had more positive attitudes toward research, and rated their research experience more highly than students in RS courses. When asked what motivated them to do their own research project, URSP students were significantly more likely to report their top three motivations as gaining experience for graduate school (83% for URSP vs. 61% for RS); working on a specific project of interest (78% for URSP vs. 65% for RS); and being excited by or loving the work (71% for URSP vs. 52% for RS). It should be noted that from a list of ten “check all that apply” options, these were the top three options for both groups. Results were similar on a set of items designed to measure student attitudes about research (e.g. “participating in the creation or discovery of new knowledge is personally rewarding,” “learning about research or creative works makes me more curious about the world,” and “I take pleasure in learning about a subject in-depth”). Although both groups responded positively to these items, URSP students responded more positively on all but one of the six items (“I enjoy learning about people and experiences that are different from my own”), which showed no difference between the groups. These results are not surprising,
given that URSP students are a self-selected group, while RS students’ choice to participate in
the courses varies by their major.

**Interview participants.** Interview participants were nine women and five men, all
seniors or graduated students who participated in the URSP in the last year. All 14 volunteered
for the study after receiving a recruiting email. Participants included 10 White students, two who
identified as Multi-Racial, one Asian, and one Latino. At least two students said that they are the
first members of their families to go to college, and most of the others had parents with at least a
bachelor’s degree. Several had parents with advanced degrees. This was a highly engaged, high-
achieving group of students.

**Interviews: What Students Taught Us**

Interviews provide important insight into people’s lives and experiences, and offer
substantially richer information than what can be learned from surveys. While we did not
explicitly use a grounded theory approach, we began the interviews without presumption of what
we would learn. We started with some questions, and let participants tell their stories. These 14
taught us a great deal, and their collective stories have shaped our thinking in ways that we could
not have planned. From the interviews, two main themes emerged that will be discussed in this
section. The first theme focuses on participants’ views on curiosity and their perceptions of the
origins of their own curiosity, and the role it plays in their research. The second theme is the
complex interplay of the undergraduate research experience and the normal developmental tasks
of the college years. We found strong evidence of this interplay in the areas of developing
competence, identity, purpose, and sense of connection or community.

**Curiosity.** What role does curiosity play in the motivation to participate and persist in
undergraduate research? When we asked our URSP students what curiosity meant to them, they
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generally defined curiosity as a drive, a hunger, or a journey. Consistent with Loewenstein (1994), several students described this drive as a sense of dissatisfaction with something they did not know, a desire to “want to know more than what’s being provided to you.” Several students observed that curiosity acts as a motivational force, driving them to “ask the question,” “go out and get involved,” and “push (themselves) to understand more.” One female student said, “Curiosity is definitely a big component of my life...That’s part of what drives a lot of what I did in college.” Like von Stumm et al.’s (2011) “hungry mind,” six of the students we interviewed talked about curiosity as a “yearning” or “appetite” for knowledge. One participant described it as an “innate desire” to learn. There was certainly a sense of sensation seeking (Mason, 2008) with these students, as they talked about a general enjoyment with learning and discovery, and a need to explore (“I would just label myself as a curious person in general”). A few students were playful or poetic in their definitions, seeing curiosity as a journey that doesn’t need an endpoint: “...you can construct your own ship and sail off. Sometimes you fall off the face of the Earth, sometimes you discover America.”

One of the most prominent findings from the interviews was that students’ research interests typically had roots in early life experiences. Most of these students had been exposed to a subject, or to certain worldviews in their childhoods, and this exposure has led either directly or indirectly to their URSP projects. One student who now studies oceanography had been raised in an outdoorsy family, and had gone on many childhood camping trips with his geologist uncle. A student who was raised in a transient military family now focuses on the connections between people and their environments. Three of our participants whose families immigrated to the United States in their own lifetimes have worked on research to understand social or political issues from their countries of origin. All of these stories support Loewenstein’s information-gap
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concept (1994); their curiosity about their research subjects was an attempt to close a gap in their knowledge. They formed their projects out of questions that emerged from their own experiences, and through the research process, they learned that there was far more to know than they had once thought (“we know more about the moon than we know about the ocean, and that is motivational to me”). The opportunities that these students have had to grow their knowledge through their research has filled their initial information-gaps and opened up new gaps of discoveries yet to happen. And for many of the participants, these gaps are turning into lifelong journeys.

Another important finding about curiosity from the interviews was the strong sense of responsibility that several of these students had to their community or family. This sense of responsibility motivates them to use their research in a way that teaches, gives back, or somehow contributes to the community. Two students talked about how much they enjoy sharing their ideas, that to teach others about what they have learned is important to them. Another student noted that the URSP experience has helped him to ask, “what am I doing to contribute,” and “realize what it means to create for something other than yourself, something that is worth teaching someone.” One of the students who had immigrated to the US as a teenager said that he not only wants to “give back to society” and “make the country a better place,” but also that he believes that he owes his parents for their hard work that has allowed him to pursue his own dreams. Participating in the URSP and having the chance to explore their questions was described as transformational by at least three of the participants. One student said that she has been completely changed by the experience, and wants to share her research broadly so that others can have a similar experience. Another student observed, “Curiosity, it turns rocks over, it
changes perspectives, it opens you up, it makes you different. It makes you more experienced. You know, it can help other people.”

**Student development.** According to some higher education scholars, learning is a holistic endeavor, involving formal and informal opportunities for cognitive and affective development, that is advanced by educational communities whereby their members (e.g., students, faculty, staff) have shared responsibility (AAHE, ACPA, & NASPA, 1998; NASPA & ACPA, 2004). While our study did not set out to examine student development and learning per se, it was clear from our findings that career development, identity formation, and belonging were very much a part of the undergraduate research experience. As expected, undergraduate research has been a means for supporting students’ life plans, in particular their career decidedness and plans for further education. For many of our participants, their URSP projects allowed them to further explore issues and topics related to their current majors or to narrow their interests within their disciplines. In fact, one participant expressed how URSP alleviated her anxiety about future career plans:

> Trying to get my career together and figure out what I am going to do for the rest of my life, it’s horribly anxiety ridden for me because I feel like I’m being forced to spend an exuberant amount of money on purchasing a shoe without the opportunity to try it on. It’s kind of how I look at it. So this research experience for me is a way to try on a shoe. According to another participant, the URSP experience allowed him to acquire demonstrable experience that he could use when searching for jobs. Through participating in URSP, the student noted, “I will be able to now say that I obtained a grant for my own research which shows that I am self-driven and motivated and able to complete projects within a time scale...It will give me more credibility for any job that I take in the future.”
Among other students, URSP allowed them to gain clarity on and additional experience with what they plan to study in graduate school. For example, a participant majoring in physics talked about having established a five-year plan for her college education, and with that plan the student noted, “I think that the research that I’ve done, it’s really – I found my niche more or less. I know where I want to be, I know what I want to be doing, I know who to contact, I know who to talk to.”

The connection between undergraduate research and career development was to be expected in this study. However, it became clear that students’ curiosity and URSP projects were associated with more personal student development issues such as identity, purpose, and belonging. Hulme et al. (2013) noted that there is a relationship among curiosity, meaning, and purpose in life, and that purpose went beyond career choice. For some of the students in this study, meaning and purpose were deeply intertwined with their identity.

Participation in URSP contributed to how students continued to form and live out their identities during their time in college. This was most noticeable among participants with immigrant parents or those who had immigrated themselves. These participants’ scholarly and educational pursuits were inextricably linked to self, family, and culture, as they studied social and political issues closely related to their respective backgrounds.

For a couple of participants, the relationship between identity and purpose was demonstrated though their choices in URSP projects, which were related to effecting change in societal issues. Accordingly, one female participant whose interests were grounded in politics and Latin studies, conducted research about a developing criminal justice system in the country where her mother was from. Another female student sought to show a more positive, affirming portrayal of women from the country where she grew up in order to counter negative media
images and inspire younger generations. When using Google to seek information for her research, the student shared that “everything that came out for every single search was mail-order websites, inappropriate websites with probably videos and pictures…So I thought, I’m not going to do a project [on] human trafficking…I’m going to focus on a topic that could educate others.”

Another profound impact that URSP had on students was how the research experience promoted community through learning. Lave and Wenger (1991) wrote extensively on the notion of legitimate peripheral participation, a concept that “concerns the process by which newcomers become part of a community of practice” (p. 29). In the case of our study, the scholarly and creative community represented a community of practice in which URSP participants grasped, created, applied, and shared knowledge. Moreover, strengthening their identities as learners was often accomplished through their relationships with faculty mentors involved in their projects.

Many of our participants spoke favorably about their mentors and noted how their mentors were instrumental to not only learning about concepts directly related to their projects, but were also valuable in helping them to garner trust and make connections with others in their fields. As one participant who was conducting research outside of the United States shared, “I think that it also helps that [my mentor] is such an eminent figure within the field and I am working with her, and they automatically trust me.” Other participants echoed the importance of positive mentoring relationships, and one participant even expressed that he tried to work with other students who served as interns for his URSP project in a similar fashion to how he was mentored in the lab by his faculty mentor. Others also talked about the role that fellow students played in this academic community. For one undergraduate researcher, the URSP experience provided insight into what it would be like to do graduate study and be a part of a research
group: “You know, I’ve never done a research project before. This is a minor taste of what a thesis is, and I have PhD students in the lab, and it’s so nice to be able to relate to them.” The sentiment about relating to other students was echoed by a student who completed a project in the arts, which required that she work closely with peers to carry out the vision of her creative piece. A common thread among students’ relationships with mentors and peers was that they were often empowering, and called for students to be active participants in their learning (Joint Taskforce on Student Learning, 1998; Lave & Wanger, 2001).

For most of those we interviewed, URSP was a signature aspect of their college experience. For these students, URSP represented more than just a research project; it constituted “transformative” learning, such that URSP “increase[d] students’ ability to think about the world, themselves, and how they think and learn (Fried, 2006, p. 5). Indeed, the URSP experience was where students gained practical academic and career experience, established positive relationships with peers and mentors, and explored issues that had great meaning to who they were as learners and as individuals.

**Practical Implications: Seamless Learning**

In its best practices document, The Council on Undergraduate Research (CUR) (2012) called for an institutional commitment to undergraduate research that emphasizes working across campus to create a culture of inquiry. This includes integration with other high-impact educational practices, and embraces as student affairs as partners. Diverse sources of support and intentional programming at multiple points in a student’s college experience could make a positive contribution for a “community of student scholars” (p. 28). CUR promotes broad access to participation in undergraduate research, bringing the culture of scholarship to students where they are, rather than keeping them isolated in separate offices that promote the benefits of these
experiences to only a select group of (typically high-achieving) students (CUR, 2012). We further posit that student development happens through experiences in and outside of the classroom, and that intentional partnerships between academic and student affairs areas are essential to positive student development. These collaborations have the potential to support “seamless learning environments” in which learning is interwoven through campus and community experiences such that it appears “whole or continuous” (Kuh, 1996, p. 136).

Although it has previously been conceptualized as an academic pursuit that contributes to personal development outcomes, undergraduate research is ripe for the kinds of collaborative, cross-functional partnerships that foster student engagement and influence student learning (Neishem, Guentzel, Kellogg, McDonald, Wells, & Whitt, 2007).

How Could Collaborations Advance the Undergraduate Research Mission?

Conventional approaches to organizing higher education dichotomize institutions into realms (e.g., faculty versus staff, academic affairs versus student affairs) separating academic learning and student development (Guarasci, 2001; Kuh, 1996). Some higher education institutions continue to sustain organizational structures in which academic affairs and student affairs operate on “parallel but separate tracks” (Terenzini & Pascarella, 1994, p. 32), in which each entity is working toward similar or related learning and developmental goals for students; yet, the work is accomplished without collaboration. We believe that a shift from dichotomously structured learning environments toward milieus supporting connected, integrative learning and development across the curriculum and co-curriculum would not only create synergy around advancing broader institutional missions, but also the mission of undergraduate research.

Movement toward a learning paradigm where cognitive, behavioral, and affective development converge would support effective collaborations to highlight the commonalities
between academic affairs and student affairs (Guarasci, 2001). This type of learning paradigm can be promulgated by high-impact practices, which have the capacity to join fragmented experiences in higher education (Wawrzynski & Baldwin, 2014). Guarasci called for opportunities that create a cohesive academic enterprise and suggested that there are opportunities where collaborations may be more of a natural fit, such as diversity education, community-based learning, residential curricular programs, and first-year and senior-year programs; however, experiences like undergraduate research should not be discounted. As Wawrzynski and Baldwin stated, “undergraduate research can break down barriers that segment learning during college and use out-of-class learning to illuminate the principles and theories covered in the formal curriculum” (p. 57). Furthermore, intentional academic-student affairs collaborations can provide the support necessary for undergraduate researchers to translate their learning beyond the classroom and for faculty and staff to holistically engage students in purposeful activities to further intellectual and personal development.

**How Can We Enrich Students’ Development?**

Our study has revealed a complex relationship among undergraduate research experiences, curiosity, and the kinds of development that we want for our students. What should we do to enrich and enhance students’ experience for the most positive outcomes? Our research encourages us to propose two main strategies: providing early exposure to research and creative work, and helping students to make meaning of their experiences.

**Early exposure.** In their meta-analysis of research on academic performance, von Stumm et al. (2011) concluded that “academic performance may be further enhanced if students’ intellectual curiosity is continuously stimulated and nurtured” (p. 582). While the students in our study possessed a great deal of innate curiosity and drive to learn, for most of them, participation
in undergraduate research has been a critical moment in their development. Many of them praised the URSP for allowing them the time and mentorship to explore their questions, and the confidence to launch second and even third projects after their first was completed. But it was clear that the URSP was not the place to start this process; early exposure to the natural world, to difference, to ideas, or to the process of research was essential to their development. Most of these students had ample access to knowledge resources—people and materials that helped them to learn and play in the world. Universities can use their vast knowledge resources to expose young people to new ideas and promote a sense of discovery and inquiry. This can mean intentional exposure to college students beginning in their first year, and can happen both in and beyond the classroom. When asked what the university could do to nurture curiosity in students, participants emphasized early exposure to faculty research through symposia and experiential learning. They also recommended exposure to inquiry skills in their general education courses, and more freedom in the degree curriculum to explore topics outside of their majors. It can also mean the university sharing its knowledge with much younger people. A good example of this is “da Vinci Days,” the summer festival of science, art, and technology that is the result of the successful, longstanding partnership between Oregon State University and the community of Corvallis. University faculty bring their research to the community, reaching thousands of children and families every year.

**Reflection and meaning-making.** It is not in the act of doing, but in the act of reflection where learning takes place. Meaning-making is an essential part of learning, helping a person to “comprehend the essence and significance of events, relationships, and learning; to gain a richer understanding of themselves in a larger context; and to experience a sense of wholeness” (NASPA & ACPA, 2004, p. 17). As educators, we should not only provide the experience, but
also help students make meaning of that experience. In terms of undergraduate research and creative work, we can help students understand the significance of both their successes and their failures, and to make sense of what it means for their identities as knowledge creators. We can help them tell their stories as scholars, and make the critical connections back to those early experiences that started them on their journeys. We can help them envision the ways in which undergraduate research makes them better professionals in their chosen fields, and find a sense of purpose in their work (Hulme et al., 2013). Like early exposure, this strategy can and should be the responsibility of the whole campus. Even the act of doing these interviews contributed to helping at least a few of these students make meaning of their research experiences, giving them the opportunity to reflect on their learning in new ways.

**Institutional Challenges**

Although institutions’ curricula and co-curricula both aim to promote learning and student success in undergraduate education, working collaboratively to achieve these goals may be hindered by challenges associated with developing and sustaining partnerships. Conflict is inevitable in academic-student affairs partnerships since “they provide space for diverse individuals to interact” (Magolda, 2005, p. 21). This conflict may materialize through individuals’ prior negative experiences with collaboration (Kezar & Lester, 2009) or through issues such as differences in unit missions, expectations for the role that faculty and student affairs staff can and should play within partnerships, or even the language each partner uses to talk about and understanding learning and development. As such, we need to be prepared for how to address these differences and provide strategies to support individuals through the conflict (Magolda, 2005). According to Kezar and Lester (2009), finding common ground
around missions and values and familiarizing partners with the what one another does may help alleviate some of this conflict.

Aside from interpersonal differences in forming partnerships, there are real administrative, financial, and structural challenges that may arise. These may include issues like decentralization of units, institutional size, lack of reward structures or compensation for work, or strained budgets. Amid these challenges, collaborative ventures may be successful when there is support from senior leadership, reward systems for participation in the partnership, and formal networks consisting of diverse individuals to support endeavors (Kezar & Lester, 2009). Although these challenges may exist, they present opportunities to find innovative ways to overcome them.

**Conclusion: Where Do We Go from Here**

We set out to explore the role that curiosity plays in the motivation to participate and persist in undergraduate research, and we asked how the university can create an environment that nurtures and rewards curiosity. We found that curiosity is indeed an essential, even foundational element that shapes the motivations and identities of undergraduate researchers. Curiosity is intricately entwined with participation in undergraduate research, and serves key developmental needs, such as establishing identity; developing competence, meaning, and purpose; and creating a sense responsibility to others. Deep engagement in a project for which they have some autonomy and freedom to explore with a strong mentor has inspired these students, and drives them forward.

We agree with Wawrzynski & Baldwin (2014) that “ideally, all dimensions of the college experience contribute to student learning and development” (p. 51). At George Mason University, *Students as Scholars* is working to “foster a culture of student scholarship.” Although
we have good partnerships with University Life and other offices, the focus has mainly been on promoting opportunities to do undergraduate research and marketing the program. Learning has been primarily restricted to the academic realm through courses and faculty mentoring, and has not yet been conceived as a collaborative, mutually developmental effort. If we are to create these seamless learning environments to support our students, we have some work to do.

As part of the larger assessment efforts, this study contributes important and timely findings. We plan to share this paper with our campus partners, and engage in discussion about what we should do to improve our partnerships and practices. This study has gone a long way to both fill in and grow our own information gap, and there are many things about which we are still curious. For instance, we interviewed a very special group of students, a group that has certainly provided rich and valuable information. But what about all of the other students that *Students as Scholars* serves outside of the selective URSP; what does curiosity look like to them? What about students who think that research is not for them? How can doing research and creative activities open up possibilities for a new understanding of themselves and their futures? Students in all fields who do not plan for graduate education can benefit from inquiry-based education. In our estimation, curious learners make the best workers and citizens. Whether curiosity is a drive, a hunger, a journey, or something else, it is the foundation of a meaningful life. As one of our participants said, “you should learn for your life...to be a whole person.” We could not agree more.
References


Hulme, E., Green, D. T., & Ladd, K. S. (2013). Fostering student engagement by cultivating curiosity. *New Directions for Student Services, 143*, 53-64.


Appendix

Curiosity and Undergraduate Research

Interview Guide

This is a semi-structured interview model, starting with the following prompts, and then using follow-up questions based on participant responses.

1. Tell me a bit about yourself (for instance, where you grew up, your school experience, education in your household).
   a. Tell me about a significant learning experience from when you were growing up.

2. What have been your best, most rewarding moments in college?

3. What kinds of activities do you engage in outside of the classroom?

4. Tell me about your URSP project.
   a. Who did you work with? What was your study?
   b. What led you to choose this project/mentor?

5. What were your expectations when you began your research project?
   a. How did your experience compare to your expectations?
   b. What have been some critical moments in your experience with research?

6. What does curiosity mean to you? Do you consider yourself a curious person?

7. What makes you curious? What/who sparks your curiosity the most?
   a. Where or when are you the most curious?

8. What motivates you? What determines your goals?

9. How does your research experience fit with your college experience? What about your future plans?

10. What role does curiosity play in the decisions you are making for the future?

11. What could the university do to spark or nurture curiosity in students? (We are thinking not just in academics, but also anywhere in the university.)

12. What else would you like to discuss?