

INNOVATION & ENTREPRENEURSHIP

University of Maryland

2017 – Issue 1, March

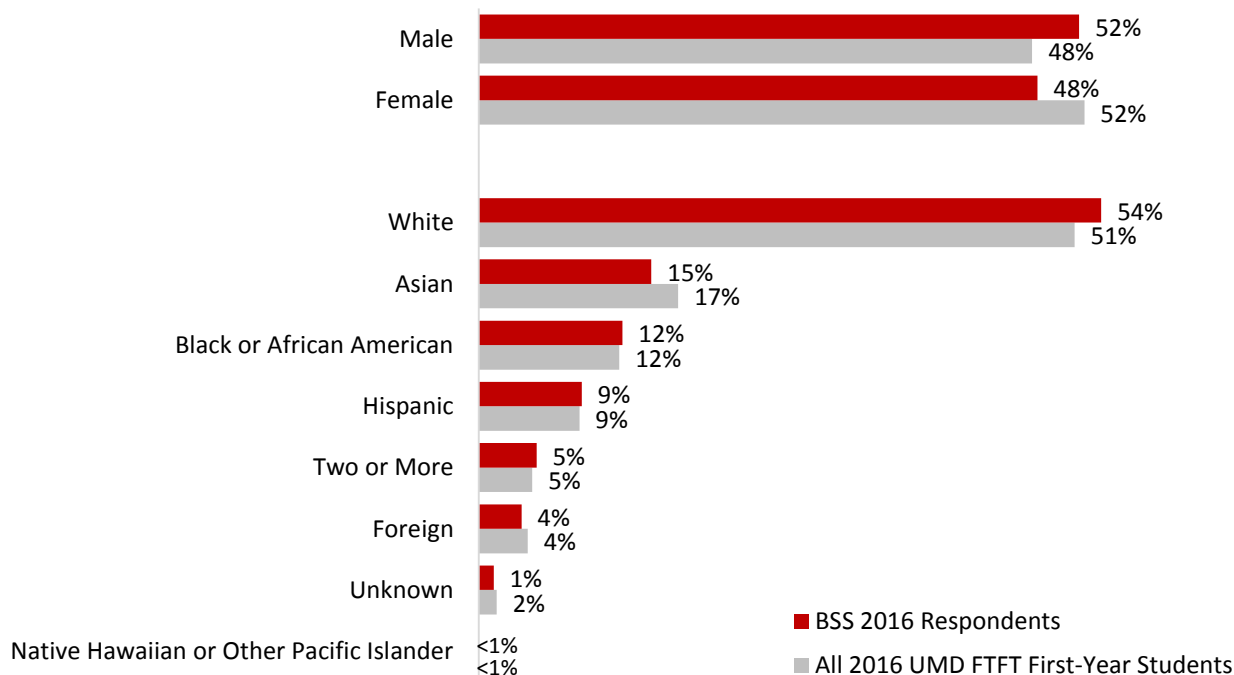
This [Campus Assessment Working Group](#) (CAWG) Snapshot by the Beginnings subgroup reports findings on first-year students' responses to questions on topics such as problem solving, forward thinking, and taking action, all of which are important to innovation and entrepreneurship (I&E). The data included represent results from the Beginning Student Survey (BSS), an annual survey administered by the CAWG Beginnings subgroup. First-year students completed the paper survey approximately 8-10 weeks into the Fall 2016 semester during courses such as ENGL 101, UNIV 100, and Honors 100.



Icons made by Eucalyp from www.flaticon.com

Respondent Demographics

For the BSS 2016, 1,800 (40%) of the 4,543 first-time full-time (FTFT) freshman students completed the survey. Demographic percentages are displayed below in red alongside a comparison to the demographic breakdown of all UMD first-time full-time students. Students in all race/ethnicity categories except “foreign” are U.S. citizens. Demographic data were pulled from UMD databases, which align with mandated federal reporting guidelines. These guidelines set the race/ethnicity groups and binary sex classifications included here. The data in this report represent only the self-reported responses of survey respondents, not all UMD first-year students; therefore, use caution when generalizing. Percentages may not sum to 100 due to rounding.



Project Context and Definitions

Given the University's prioritization of I&E and its inclusion as an [Institutional Objective](#), the Beginnings subgroup focused on this theme in the 2016 survey. UMD was recently named one of the top 10 best undergraduate programs for entrepreneurship (Entrepreneur Magazine 2017) for the second year in a row. I&E is woven throughout UMD's ecosystem, providing students with a wide variety of avenues to explore and learn these concepts through living-learning programs, competitions, research, hackathons, areas of study, and courses. Members of the subgroup met with UMD faculty and staff whose work relates to I&E before developing survey questions and discovered that the terms “innovation” and “entrepreneurship” mean many things to many people. For the purposes of crafting the survey, the Beginnings subgroup defined I&E broadly.

- **What is innovation?** Innovation is knowing how to creatively solve complex problems.
- **What is entrepreneurship?** Entrepreneurship is knowing how to scale solutions to maximize the number of people affected.

While the terms are defined here to help enhance readers' understandings, the survey did not use the terms. Rather, Beginnings opted to break down those ideas into smaller components such as creative problem solving, forward thinking, willingness to take action, design thinking, and growth mindset. Survey results are organized into these broad, and admittedly overlapping, categories.

Campus I&E Resources

Program	Website
Academy for Innovation & Entrepreneurship	http://innovation.umd.edu/
Center for Social Value Creation	https://www.rhsmith.umd.edu/centers-excellence/center-social-value-creation
Dingman Center for Entrepreneurship	https://www.rhsmith.umd.edu/centers-excellence/dingman-center-entrepreneurship
Fearless Ideas Courses	http://innovation.umd.edu/learn/fearless-ideas-courses/
Hackathons	Technica: http://got Technica.org/ Bitcamp: http://bitca.mp/
Hinman CEOs	http://www.hinmanceos.umd.edu/
Mtech	http://www.mtech.umd.edu/index.html
Startup Shell	https://startupshell.org/
UMD Makerspaces	John & Stella Graves Makerspace: http://www.lib.umd.edu/tlc/makerspace Terrapin Works: https://terrapinworks.umd.edu/
Venture competitions	Do Good Challenge: https://dogood.umd.edu/

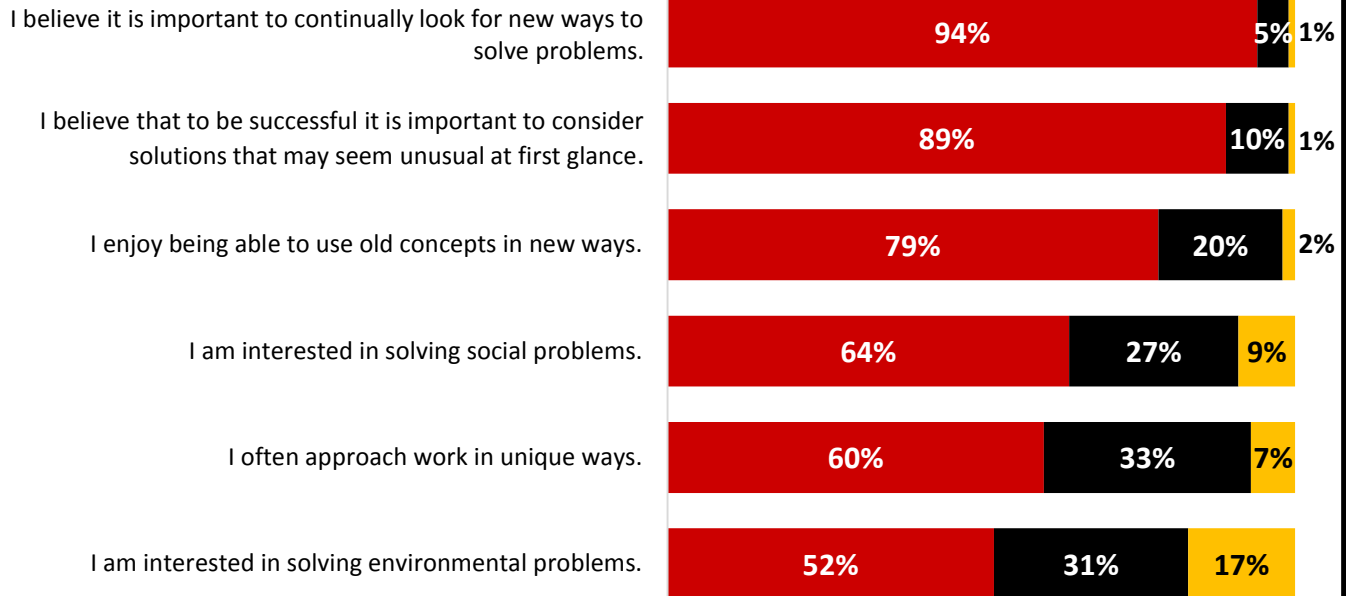
Question to consider: Students were asked about their knowledge of a variety of I&E resources on campus. Between approximately 25% and 55% of respondents had heard of each program. As may have been expected 8-10 weeks into their first year on campus, respondents had low resource awareness. How can we expand knowledge and usage of resources available on campus?



Creative Problem Solving

Part of both innovation and entrepreneurship is “stepping outside of the box,” or thinking about topics, problems, and processes in new ways.

■ Agree or Strongly Agree ■ Neither Agree nor Disagree ■ Disagree or Strongly Disagree



N = 1791 – 1798, depending on item

- Students generally see value in using old concepts in new ways. The vast majority of respondents “believe it is important to continually look for new ways to solve problems” (94%) and almost as many “believe that to be successful it is important to consider solutions that may seem unusual at first glance” (89%).
- Though more than three-quarters of respondents agree or strongly agree that they “enjoy being able to use old concepts in new ways” (79%), fewer report that they “often approach work in unique ways” (60%).
- Approximately two-thirds of respondents are “interested in solving social problems” (64%), whereas approximately one-half are “interested in solving environmental problems” (52%).

Questions to consider:

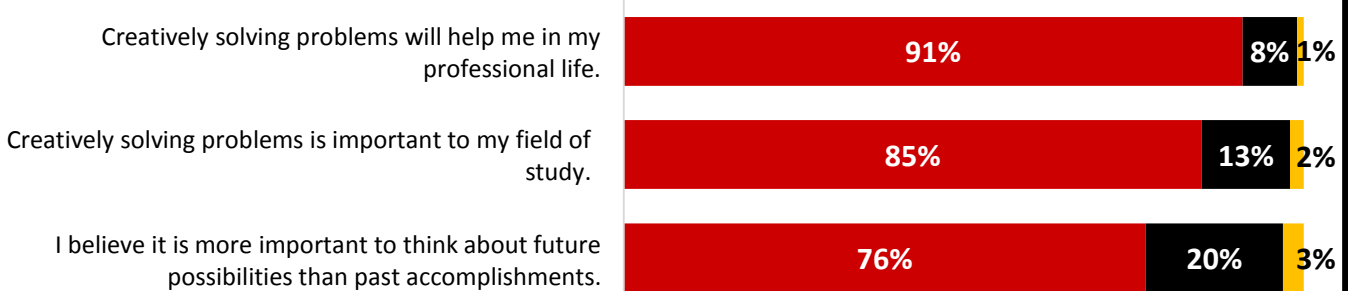
- Nearly all respondents (94%) believe looking for new ways to solve problems is important, yet only 60% of respondents reported actually approaching work in unique ways. How might UMD challenge and empower students to approach their work creatively?
- How do we incorporate creative problem solving into the curriculum and define this in separate disciplines? How do we assess innovation?



Forward Thinking

Entrepreneurs often need to see past the immediate present and consider not only future events and needs but also how to get there.

■ Agree or Strongly Agree ■ Neither Agree nor Disagree ■ Disagree or Strongly Disagree



N = 1782 – 1796, depending on item

- Respondents generally see the future benefits of creatively solving problems. Ninety-one percent (91%) agree that it will help them in their professional life and 85% agree it is important to their field of study.

Questions to consider:

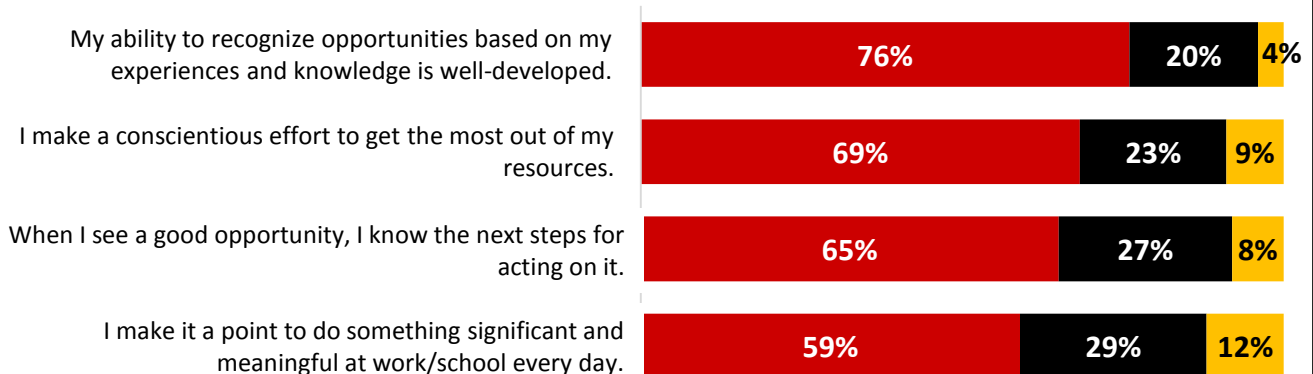
- How might we create opportunities for students to apply creative problem solving to their academics as a way to practice for their professional lives?
- How might students be able to demonstrate their experiences with innovation and entrepreneurship clearly and succinctly on resumes or in job interviews?



Willingness to Take Action

Any action, large or small, is key to taking an idea to the next stage. You have an idea, great! Now what?

■ Agree or Strongly Agree ■ Neither Agree nor Disagree ■ Disagree or Strongly Disagree



N = 1788 – 1791, depending on item

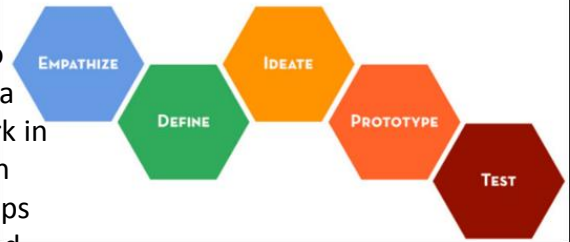
- More than three-quarters of respondents believe their ability to recognize opportunities is well-developed (76%), but fewer know the next steps for acting on a good opportunity (65%).

Question to consider: What barriers might be preventing students from acting on opportunities, and what can UMD do to remove those barriers?

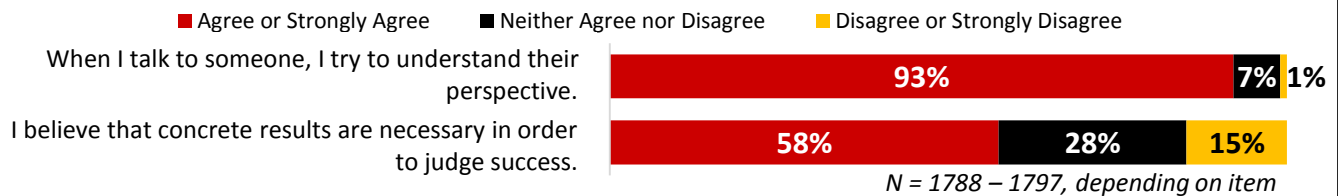


Design Thinking

Design Thinking is one way to approach creative problem solving. This mindset for innovation begins with empathy to define and understand problems and needs. Students with a diversity of skills, experiences, cultures, and viewpoints work in teams to ideate by generating many ideas that build on each other. Teams then prototype by creating inexpensive mockups and test them in the field. Key lessons from what worked and what didn't are captured, and the whole process is repeated. The results of Design Thinking aren't just physical products; they can be solutions, systems, services, or even experiences.



Text adapted from: <http://innovation.umd.edu/about/design-thinking/>



Please indicate your level of confidence in your ability to do the following:



- Fifty-eight percent (58%) of respondents believe that “concrete results are necessary in order to judge success” and 71% report that they are confident in their ability to “share [their] work with others before it is finished to [their] satisfaction.”
- The design thinking process is inherently iterative and most respondents express confidence in their ability to find solutions that are not immediately obvious (83%) and keep on working even after failure (81%).
- Three-quarters of respondents were confident in their ability to both find inspiration from (76%) and attempt multiple solutions for (75%) issues not directly related to the problem at hand.

Question to consider: Design Thinking often involves redefining problems or approaching them in new ways. Given that one-fourth of respondents are not confident in their ability to "change the definition of a problem [they] are working on," how might UMD help students build more confidence in this area?



Mindset

A growth mindset is important to have throughout this process. The idea of mindset was developed by Stanford University psychologist Carol Dweck: “In a fixed mindset, people believe their basic qualities, like their intelligence or talent, are simply fixed traits. They spend their time documenting their intelligence or talent instead of developing them. In a growth mindset, people believe that their most basic abilities can be developed through dedication and hard work—brains and talent are just the starting point.” (<http://mindsetonline.com>)

■ Agree or Strongly Agree ■ Neither Agree nor Disagree ■ Disagree or Strongly Disagree

In general, people have a certain amount of creative ability and they cannot really do much to change it.

30%

27%

43%

N = 1781

Please indicate your level of confidence in your ability to do the following:

■ Completely, Very, or Confident

■ A Little or Not At All Confident

Identify and implement ways to enhance your own creativity

79%

21%

Solve problems in ways that others would consider creative

79%

21%

Help others be more creative

77%

23%

Explicitly define or describe your creative process

67%

32%

N = 1786 – 1790, depending on item

- Most respondents reported that they were confident in their ability to increase creativity in themselves (79%) and others (77%). However, nearly one-third (30%) of respondents reported that they believe that creativity is a fixed trait.

Question to consider:

Nearly one-third of respondents (30%) agree or strongly agree that “people have a certain amount of creative ability and they cannot really do much to change it.” What can UMD do to promote a “growth mindset” and help students think more creatively?



Beginnings Subgroup Members

Joann Prosser, Chair, Resident Life
 Zac Beitzel, Undergraduate Admissions
 Rachel Gammons, Libraries
 Kaye Guidugli, Letters & Sciences
 Emily Foley, Institutional Research, Planning and Assessment (IRPA)
 Erin Iverson, Resident Life
 Emily Kelly, QUEST Honors Program
 Alia Lancaster, Division of Information Technology

Britt Reynolds, Undergraduate Admissions
 Frank Rojas, IRPA
 Nicole Roop, College of Engineering
 Kristan Skendall, Gemstone Program
 Brooke Smith, Academy for I&E
 Jay Smith, Entrepreneurship & Innovation Program
 Alan Socha, IRPA



The Campus Assessment Working Group (CAWG) regularly gathers and exchanges information about UMD student and alumni experiences. The group is charged with developing a campus “Culture of Evidence” in which data and assessment can inform campus decision making. Its three subgroups focus on freshman experiences, junior/senior student experiences, and retention and completion efforts. For more information, to view past reports, or to join a CAWG subgroup, please visit www.umd.edu/cawg.