Women in Technology Sharing Online (WitsOn): Assessing Usage, Satisfaction, and Outcomes from an E-Mentoring Course

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EXECUTIVE SUMMARY

This report provides the results of an evaluation study focused on the usage, satisfaction, and outcomes attributed to participation in the pilot iteration of Women in Technology Sharing Online, or WitsOn, by program participants from the University of Wisconsin-Madison.

Research Methods

Data were collected using a two-part online survey. Part I assessed students' usage, satisfaction with, and self-reported changes following their WitsOn participation, while Part II asked about students' demographic and academic backgrounds, and their career decision-making expectations and beliefs. The report provides descriptive data and, due to the small response rate, no inferential hypothesis tests for significance were conducted. Means and standard deviations were calculated using standard procedures for all quantitative data derived from the survey and its scales.

Results

The report's results section is divided into five major subcategories, outlined below.

Participant Characteristics

All respondents were female, U.S. Citizens. The majority (92.3%, or 12) of respondents were Caucasian or White, while one respondent (7.7%) was Asian, for those who reported their race and ethnicity. None were Hispanic or Latina. All respondents were enrolled in bachelor's degree programs, and two-thirds of the respondents were also completing a minor/certificate program. Respondents had an average of 4.6 semesters remaining before graduation at the time of the survey, assuming continuous enrollment.

When asked about their likelihood in persisting in their fields of study, the group as a whole was somewhat unlikely to change their majors before graduation, and very unlikely to transfer to another school or to leave school altogether. When asked about their long-term (ten-year) goals, all respondents indicated that they wanted to have completed "a degree", and most indicated that they wanted to an advanced degree. Additionally, most followed statements about degree completion goals with aspirations of having a job in industry, in academia, or "in the field."

Respondents' WitsOn Usage

The majority of respondents spent between 0-40 minutes per week using WitsOn, and logged on between 2-3 weeks of the six-week session. Students reported only rarely or sometimes posting new material themselves, spending the majority of their time online reading the posts of mentors and peers. The most common reason for participating in the program was to learn about the experiences of women in STEM fields, especially regarding any challenges or obstacles that they may have faced or continued to face. The second most common reason was to learn about different career options and pathways.

Satisfaction Using WitsOn and Suggestions for Improvement

The majority of respondents found the WitsOn course platform easy to use. Most respondents were satisfied with the different levels of interaction they experienced and with the course overall. Additionally, 71.4% indicated both that they would continue participating in WitsOn if given the opportunity and that it was worth the time they spent. Almost two-thirds (64.2%) indicated that they would recommend it to a friend or peer in the future. Most respondents wrote that their favorite aspect of the WitsOn experience was reading mentor biographies, in addition to enjoying the community aspects of the course and the self-directed nature of the activity.

When asked what features they would improve, comments pointed to a feeling of being overwhelmed by the number of threads, and desiring more precise search results. Several respondents wanted the ability to review threads within particular disciplines. More frequently, respondents indicated that they had hoped

to see a wider variety of instructors serving as mentors, making the program more applicable to a wider range of students, or to provide role models and women with experiences in their own fields of study. Some respondents also noted that it would have been beneficial to identify student peers in their disciplinary areas.

Outcomes Attributed to WitsOn
Respondents reported positive outcomes from their participation in WitsOn. They reported the most impact on their interest in pursuing their goals, followed by confidence in their ability to set their goals and motivation to achieve them. They also reported an impact on their interest in participating in an offline mentoring program, one of the specific goals of the WitsOn program.

Career Decision-Making Expectations and Beliefs
Students were quite confident in their decision-making abilities overall, and most confident in their goal selection and planning abilities after participating in WitsOn. Overall, this student group seemed to agree that pursuing a college degree would yield a positive return on their investment of time, effort, and resources. The group as a whole was more likely to agree that they would achieve positive outcomes from a college (bachelor's) degree than from a graduate degree, despite the fact that the majority of respondents indicated that they intended to pursue a graduate or professional degree in their statement of long-term goals. Students most frequently expected to encounter barriers in balancing work and other life responsibilities. The difficulty of finding a job was their second most frequently expected barrier. They also expected both of these barriers, if encountered, to have the most negative impact on their progress.

Summary and Recommendations
The results of this evaluation study suggest that WitsOn was successful in achieving several of its stated program goals, not the least of which included inspiring young women to persist in their STEM degree or career choices, and to seek out additional mentoring opportunities following the program. One of the topics in which students had the most interest and found most useful during the program, balancing work and life responsibilities, was also a barrier area that they most expected to encounter and hinder their progress. This suggests that program content aligned with participant needs and interests in a useful way.

As an e-mentoring program for undergraduate STEM women, WitsOn was unique and differed from other activities in that it was a collective and self-directed activity. As is typical with MOOCs (Kop, 2011), most respondents spent their time reading the posts of others, and did not interact very frequently or contribute new content. Despite adding their own material at somewhat low rates and reading others' posts for an hour per week or less, the group overall reported positive influences in the areas described above. The most recurrent theme in these results was the value placed on reading about the mentors' experiences and strategies for overcoming obstacles. These results are consistent with previous research findings that women not only form their career self-efficacy expectations through vicarious experiences, but also that, when they do not have much personal experience, they tend to be influenced more by the experiences of successful role models (Zeldin & Pajares, 2000; Zeldin, Britner, & Pajares, 2008).

Recommendations for future iterations of WitsOn or other online, collective e-mentoring programs include:
- Continuing to provide "direct access" to a wide variety of mentors who are willing to share their stories of career development, decision-making, and persistence in the face of barriers
- Enhancing search features and capability to allow for greater specificity of results returns
- Considering the ability to divide the forum according to discipline or field, allowing for greater specificity of stories and networking, while supporting cross-disciplinary interaction.

OVERVIEW

This report includes information from an evaluation study focused on the usage, satisfaction, and outcomes attributed to participation in the pilot iteration of Women in Technology Sharing Online, or WitsOn, by program participants from the University of Wisconsin-Madison. WitsOn was designed to connect female undergraduate STEM students with successful female mentors from industry and academia, with the hope that following the program participants would better be able to envision themselves in STEM careers, and take steps toward that goal (WitsOn, 2012).

The report examines several aspects of the program experience, including usage, satisfaction, and outcomes attributed to participation by our evaluation respondents. It also includes information about the responding participants, including their race and ethnicity, major program of study and certificate program areas, and their long-term academic and career goals. Finally, it also includes information about their career decision-making self-efficacy, the outcome expectations they have regarding completing both undergraduate and graduate degrees, and their perceptions of career barriers and the extent to which various barriers might hinder their career progress, if encountered.

Information about the questions asked is provided within the methodology and results sections. The report concludes by providing a reference list and appendices, which include a letter of approval from the University of Wisconsin Institutional Review Board, all correspondence with members of the sample list, informed consent information, and a complete copy of the survey instrument.

WITSON PROGRAM DESCRIPTION

The Women in Technology Sharing Online, or WitsOn, was a six-week massive open online course (MOOC) administered in Fall 2012. It served as a collective e-mentoring program, connecting female undergraduate STEM students with peers and successful female mentors from industry and academia, with hopes that following the program participants would better be able to envision themselves in STEM careers, understand how to handle career barriers, take steps toward reaching their goals, and seek out additional offline mentoring (WitsOn, 2012).

Highlighted regularly in popular news media and publications focused on higher education (e.g., *Inside Higher Education*, and the *Chronicle of Higher Education*), MOOCs are classes taught online to large numbers of students, often with minimal involvement by professors, many times free of charge and not for credit. MOOCs like WitsOn are becoming a common way in which higher education students can participate in courses to gain content and connections that are otherwise unavailable to them, overcoming the place-oriented challenges also presented in face-to-face mentoring programs. Described as a "connectivist MOOC," WitsOn's purpose was geared more toward making connections than providing a formal curriculum, and participants could take as much or as little from the experience as they wished (Lewin, 2012).

Over 70 schools nationwide included their students in WitsOn. Instructors who served as mentors included graduate students, postdocs, staff scientists, and industry professionals. Instructors posted their biographies, including stories of their career progression and decision-making, information about their job satisfaction and the barriers they faced, and what strategies they used to overcome challenges. Students were encouraged to ask questions about career paths and experiences, or any other areas they felt were applicable. Frequently, instructors posed questions to the students, encouraging discussion and interaction. When students posted a question or response that an instructor or peer found interesting, it would be marked as a "good note" and promoted as potentially useful for other participants. Each week, a lead mentor would respond to selected student questions in a video response posted online.

RESEARCH METHODS
This section describes IRB approval activities, instrumentation, data collection and analysis procedures.

IRB Approval
This study was approved by the University of Wisconsin-Madison Institutional Review Board, Education (ED-IRB).The protocol was submitted to the IRB on November 1, 2012, and approved on November 19, 2012. A protocol change request for additional recruitment contacts was submitted to the ED-IRB on December 12, 2012, and approved on December 19, 2012 (Appendix A).

Instrumentation
Data for this study were collected using a two-part online survey (Appendix B). Part I assessed students' usage, satisfaction with, and self-reported changes following their WitsOn participation. Part II asked about students' academic backgrounds and career decision-making processes. The Career Decision-Making Self-Efficacy Scale-Short Form (CDMSE-SF), the College Outcomes Questionnaire (COE), and the Career Barriers Inventory (CBI) were among measures used, using the modifications reported in Byars (1997) and Hird (1995). The text of each scale and the instructions provided to respondents are reported in the Results section of this report.

Career Decision-Making Self-Efficacy-Short Form
The CDMSE-SF assesses confidence in one's ability to make decisions about identifying and then choosing a career (Betz, Klein, & Taylor, 1996; Hird, 1995). The instrument grew out of Hackett and Betz's efforts to explain the underrepresentation of women in high status and male-dominated fields, by understanding and clarifying women's career choices and trajectories through the lens of self-efficacy theory (Hackett & Betz, 1981; Miguel, Silva, & Prieto, 2013; Zeldin, Britner, & Pajares, 2008). There are five domains of relevant behaviors in CDMSE: self-appraisal, gathering occupational information, goal selection, planning, and problem solving (Betz & Taylor, 2001, in Hansen & Pedersen, 2012). Each of these domains are assessed using five randomly ordered items each, for a total of 25 items in the scale.

College Outcomes Questionnaire
The COE measures respondents' "expectations about the outcomes of obtaining a baccalaureate and graduate degree" and their perceived "cost-benefit ratio of achieving a college education" (Byars & Hackett, 1995; Hackett, Betz, Casas, & Rocha-Singh, 1992; in Byars, 1997, p. 42). The instrument mainly lists positive outcomes expected from completing a college degree or a graduate degree, but also asks about two potentially negative outcomes.

Career Barriers Inventory
The CBI asks participants about the expected likelihood of encountering certain barriers as they seek out and begin their careers. It also asks about the extent to which the respondent's career progress would be hindered if each barrier were encountered. The inventory contains four areas, including choice of career (4 items), finding a job (8 items), job performance (14 items), and balancing a job with other aspects of life (6 items), and also grew out of work designed to enhance understandings of the career psychology of college-aged women and men (Byars, 1997; Hackett & Byars, 1996; Swanson & Tokar, 1991). A later version of the instrument, the Career Barriers Inventory-Revised (CBI-R; Swanson, Daniels, & Tokar, 1996) may be useful for any future evaluations or studies of WitsOn participants, but was not available for this evaluation study.

Data Collection Procedures
The sample for this study included 65 WitsOn participants from the University of Wisconsin-Madison. Participants were sent a pre-notice email on December 2, 2012, one day before the survey link was

provided, informing them that they would be invited to participate in a survey about their WitsOn course experience. On December 3, they were sent an invitation to participate in the survey. Non-respondents were sent three reminder emails over the course of a five-week period, on December 12, December 19, and January 2. Data collection was closed on Monday, January 7, 2013. All correspondence items for the study are included in Appendix C.

Data Analysis

This study reports descriptive data and, due to the small response rate, no inferential hypothesis tests for significance were conducted. Means and standard deviations were calculated using standard procedures for all quantitative data derived from the survey and its scales. Open-ended responses to survey items were inductively coded and categorized using content analysis to generate themes for further reporting (Mayring, 2000).

RESULTS

This section includes all data provided in response to all items in both sections of the survey instrument. Both the frequency and percentage of responses to each item are reported, as well as the mean and standard deviation for many scaled items. Open-ended responses have been modified for punctuation and grammar, and to remove any identifying information provided by the respondents. The order of presentation for these items differs from the order in the survey instrument, as related content has been grouped and presented together. Other than consent to participate in the research study, no questions on any portion of the survey were required, and the number of responses may vary from item to item.

Participant Characteristics

This section describes the characteristics of the WitsOn participants who responded to the survey, for those who provided the information. We asked about their gender, race and ethnicity, as well as past, current, and academic program experiences. These elements included whether respondents had transferred from another institution or program of study prior to participating in WitsOn, their current programs of study, self-assessments of their performance relative to their peers, likelihood of persisting in their majors and degree programs, and their long-term academic and career goals.

The majority of respondents were not first-generation college students, had begun their college careers at UW-Madison, and did not hold any degrees at the time of the survey. Of those who provided their current major, areas represented included biochemistry, biology, or a biology subfield; engineering; agricultural science; mathematics; and among a few completing two majors, foreign languages. Two-thirds of the respondents were also completing a minor/certificate program.

When asked about their likelihood in persisting in their fields of study, the group as a whole was somewhat unlikely to change their majors before graduation, and very unlikely to transfer to another school or to leave school altogether. When asked about their long-term (ten-year) goals, all respondents indicated that they wanted to have completed "a degree", and most indicated that they wanted to an advanced degree. Additionally, most followed statements about degree completion goals with aspirations of having a job in industry, in academia, or "in the field."

Demographic information

All respondents were female, U.S. Citizens. The majority (92.3%, or 12) of respondents were Caucasian or White, while one respondent (7.7%) was Asian, for those who reported their race and ethnicity. None were Hispanic or Latina. All respondents were enrolled in bachelor's degree programs, and had an

average of 4.6 semesters remaining before graduation at the time of the survey, assuming continuous enrollment.

Academic background
Participants were asked to answer "yes" or "no" to the following questions.

	Yes	**No**
Are you the first in your immediate family to attend college?	0.0% (0)	100.0% (13)
Have you ever been an undergraduate student at another school, college, or university, prior to coming to UW-Madison?	15.4% (2)	84.6% (11)
Do you have any degrees or credentials from an institution other than UW-Madison?	0.0% (0)	100.0% (13)
Have you changed your declared major while an undergraduate at UW-Madison?	23.1% (3)	76.9% (10)

What was your major or program of study at your previous institution?
- Undecided
- Biology

Why did you come to UW-Madison to continue your undergraduate career?
- Better facilities
- Financial reasons

Programs of study
What is your current major or program of study? If you are completing a second major, please include both. *(12 responses)*
- Industrial Engineering
- Engineering Mechanics
- Geological Engineering
- Civil and Environmental Engineering
- Horticulture
- Biochemistry
- Biochemistry
- Biochemistry
- Biology
- Neurobiology
- Genetics
- Mathematics
- Chinese
- Italian

Are you completing any certificates? The majority of respondents (69.2%; 9) were completing at least one certificate, but not all identified the program area. Certificate areas included:
- Business
- Business
- International health
- ISSuES
- Entrepreneurship
- Global Health

- German
- Stem Cell
- Environmental Studies

Self-assessments of academic performance
Respondents also provided information about their academic performance and rated themselves against their peers in their majors. The majority of students rated themselves as performing similarly to their peers.

What is your...

	3.00 or below	3.01-3.50	3.51-3.60	3.61-3.70	3.71-3.80	3.81-3.90	3.91-4.00
...cumulative GPA?	8.3% (1)	33.3% (4)	16.7% (2)	0.0% (0)	16.7% (2)	25.0% (3)	0.0% (0)
...GPA in your major?	11.1% (1)	22.2% (2)	22.2% (2)	0.0% (0)	11.1% (1)	33.3% (3)	0.0% (0)

How would you compare your performance in your major to that of your peers?

	%	N
Below that of my peers	7.7%	1
About the same as my peers	76.9%	10
Above that of my peers	15.4%	2

Likelihood of persisting in their major and in college
The majority of respondents were unlikely to change their majors, to transfer to another institution, or to leave school before completing their bachelor's degree.

What is the likelihood that you will...

	Very unlikely 1	Somewhat unlikely 2	Neither unlikely nor likely 3	Somewhat likely 4	Very likely 5	Mean (SD)
...change your major before graduating from UW-Madison?	46.2% (6)	23.1% (3)	15.4% (2)	7.7% (1)	7.7% (1)	2.08 (1.32)
...transfer to another institution before graduating from UW-Madison?	84.6% (11)	7.7% (1)	0.0% (0)	7.7% (1)	0.0% (0)	1.31 (0.85)
...leave school and not complete your degree program?	92.3% (12)	7.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	1.08 (0.28)

Why do you think you may change majors?
- I will change my major to specify in a particular type of biology rather than biology generally.

New Major choice?
- Genetics

Why do you think you may leave school?
- I don't like the undergraduate program here

Participants' long-term academic and career goals
Respondents were next asked to imagine themselves ten years into the future, and share the academic and career goals they wished to have accomplished by then. All respondents indicated that they wanted to

have completed "a degree", and most indicated that they wanted to pursue a medical or doctorate degree. Additionally, most followed statements about degree completion goals with aspirations of having a job in industry, in academia, or "in the field." Only a few noted that they would like to be happy in their choices, or indicated that they might engage in further career decisions and goal setting after ten years.

Imagine yourself ten years into the future. What academic or career goals would you like to have achieved by then? For example, what kind of degree program(s) would you like to have completed, or position do you hope to have secured? *(11 responses)*

- In ten years I will have spent some time working in industry and have earned a masters if not a PhD. By that time I will also have a better idea of whether I want to stay in academia or go back into industry.
- In ten years, I would have liked to have a stable job in the professional field of my choosing and I would like to be happy with my choice.
- I would like to have completed college up to a bachelor's degree and have a self-sufficient job in the workforce doing engineering.
- I would like to be graduated with a PhD and have a job in the field related to my major.
- I would like to get my BME degree at Madison and have a steady job.
- 10 years from now I hope to get an MD/PhD revolving around human health and horticulture.
- I would like to be involved in a career in health care. As of now I see myself as a physical therapist or MD. Also could see myself in biology research.
- I hope to be a lecture at a college, community college or perhaps a teacher. I want to help others discover the fun in math and science, since most people don't like these areas because they are "too hard."
- I hope to be finishing medical school.
- I would like to either become an MD and work in a hospital where I can be successful and helping create new information. Otherwise I would like to become a researcher of some form as well as a professor.
- Undergraduate degree and hopefully a doctorate in some engineering related field.

Respondents' WitsOn Usage

In this section, we asked participants about their experience in using WitsOn on the Piazza platform. We asked about how they learned about WitsOn, how much they engaged in the course each week and throughout its duration, and how often they contributed content to the course. We also asked about their reasons for joining the course, and whether any goals they had for their participation were unmet.

The majority of respondents spent between 0-40 minutes per week using WitsOn, and logged on between 2-3 weeks of the six-week session. Students reported only rarely or sometimes posting new material themselves, spending the majority of their time online reading the posts of mentors and peers. The most common reason for participating in the program was to learn about the experiences of women in STEM fields, especially regarding any challenges or obstacles that they may have faced or continued to face. The second most common reason was to learn about different career options and pathways.

Learning about WitsOn

How did you learn about WitsOn? *(Please check all that apply.)*

	%	N
Email, Facebook post, Tweet, or other suggestion from *a friend or peer*	17.6%	3
Email, Facebook post, Tweet, or other suggestion from *a faculty member*	35.3%	6
Email, Facebook post, Tweet, or other suggestion from *someone else in your school or college* (e.g., a student services advisor, or department advisor)	41.2%	7
Media about WitsOn (e.g., *New York Times* article)	5.9%	1
Other	0.0%	0

Amount of time spent, engagement with WitsOn

On average, how many *minutes per week* did you use WitsOn? (Time spent can include reading posts or instructor biographies, watching the lead mentor videos, posting questions, and responding to mentors and peers.)

	%	N
0-20 minutes per week	52.9%	9
21-40 minutes per week	29.4%	5
41-60 minutes per week	17.6%	3
Between 1 and 2 hours per week	0.0%	0
Between 2 and 3 hours per week	0.0%	0
More than 3 hours per week	0.0%	0

During the six-week course, how many weeks did you log onto WitsOn?

	%	N
0-1 week of 6	17.6%	3
2-3 weeks of 6	58.8%	10
4-5 weeks of 6	23.5%	4
All 6 weeks	0.0%	0

How often did you...

	Never 0	Rarely 1	Sometimes 2	Often 3	Very often 4	Mean (SD)
...post a new discussion thread?	76.5% (13)	17.6% (3)	5.9% (1)	0.0% (0)	0.0% (0)	0.29 (0.59)
...receive a response from *a peer* to your posts?	82.4% (14)	5.9% (1)	0.0% (0)	11.8% (2)	0.0% (0)	0.41 (1.00)
...receive a response from *an instructor* to your posts?	76.5% (13)	5.9% (1)	11.8% (2)	5.9% (1)	0.0% (0)	0.47 (0.94)
...respond to *posts initiated by student peers*?	64.7% (11)	11.8% (2)	23.5% (4)	0.0% (0)	0.0% (0)	0.59 (0.87)
...respond to an *instructor's note, post, or biography*?	52.9% (9)	23.5% (4)	17.6% (3)	5.9% (1)	0.0% (0)	0.76 (0.97)

Reasons for participating in WitsOn and goal accomplishment

Why did you participate in the WitsOn program? What goals did you have for your participation in WitsOn? *(13 responses)*

- I wanted to find out more about careers in science and engineering.
- I intended to learn more about career possibilities and get a better idea about how to decide whether I should go to grad school and if so how I can refine my field of focus.
- I thought it would be a good way to learn more about tracking a Science career.

- At the time that I joined, I was deciding which pre-professional program I would like to pursue and saw WitsOn as a means of gaining both the pros and cons to all of my options to make an informed decision.
- I wanted to get advice from other women in engineering fields.
- Learn how women made it through their years, what paths they took, listen for thing to look out for to better prepare my own path.
- I thought it would be an interesting way to gain knowledge about potential aspects of my future.
- I wanted to see what other women in engineering were feeling and the obstacles they had.
- I was interested to hear about the lives and struggles of women in STEM careers as well as hear about stories from my peers.
- I hoped to meet other students facing similar challenges and sharing solutions to common problems.
- I thought it would be good to get a perspective on what it would be like for female scientists at every age group.
- I chose to participate in hopes of hearing what other women have done with their lives and what challenges they faced.
- To learn about the problems I might face as a women going into a science field.

Which goals for your participation, if any, were unmet, and why? *(7 responses)*
- They were all met.
- I myself did not participate as much as I initially planned on. Found myself forgetting I was even a member of the group due to the business of my class and work load.
- I found it hard to get information on physical therapy and veterinary medicine because I couldn't find many other students and mentors who were participating in these already. I found that most of the mentors were in engineering and less in other pre-professional programs.
- None
- I didn't visit the site very often because there was an overwhelming amount of posts and material to read.
- I didn't feel like most of the topics were relevant to me. Many of the discussions were about majors unrelated to mine, and I found sorting through all the discussions difficult to figure out what was important to me.
- I think the only goal I wanted was one that I had put on myself. I had wanted to participate more, but I thought that this was at a horrible time of the year because it was like there were a ton of finals.

Satisfaction Using WitsOn

In this section we asked about respondents' levels of satisfaction with different elements of their WitsOn experience; about their favorite and least favorite aspects of the course; and what suggestions they may have for improving the course in the future.

The majority of respondents found the WitsOn course platform easy to use. Most respondents were satisfied with the different levels of interaction they experienced in the course and with the overall experience. Additionally, 71.4% indicated both that they would continue participating in WitsOn if given the opportunity and that it was worth the time they spent. Almost two-thirds (64.2%) indicated that they would recommend it to a friend or peer in the future. Most respondents wrote that their favorite aspect of the WitsOn experience was reading mentor biographies, in addition to enjoying the community aspects of the course and the self-directed nature of the activity.

When asked what features they would improve, comments pointed to a feeling of being overwhelmed by the number of threads, and desiring more precise search results (which was also pointed to with respect to unmet goals for participation, above). Several respondents wanted the ability to review threads within particular disciplines. More frequently, respondents indicated that they had hoped to see a wider variety of instructors serving as mentors, making the program more applicable to a wider range of students, or to provide role models and women with experiences in their own fields of study. Similarly, some respondents also noted that it would have been beneficial to identify student peers in their disciplinary areas.

Ease of use and navigation
How difficult or easy did you find it to access and navigate within WitsOn?

	%	N
Very difficult	0.0%	0
Difficult	17.6%	3
Neither difficult nor easy	35.3%	6
Easy	47.1%	8
Very easy	0.0%	0

Satisfaction with interaction and overall experience
How satisfied are you with...

	Not at all 1	A little 2	Some-what 3	Very 4	Extremely 5	Not applicable	Mean (SD)
...the *peer interaction* you experienced in WitsOn?	16.7% (2)	0.0% (0)	50.0% (6)	8.3% (1)	8.3% (1)	16.7% (2)	2.90 (1.20)
...the *instructor interaction* you experienced in WitsOn?	8.3% (1)	8.3% (1)	25.0% (3)	41.7% (5)	8.3% (1)	8.3% (1)	3.36 (1.12)
...the *lead mentor interaction* you experienced in WitsOn?	16.7% (2)	8.3% (1)	41.7% (5)	16.7% (2)	8.3% (1)	8.3% (1)	2.91 (1.22)
...your *overall* WitsOn experience?	8.3% (1)	8.3% (1)	58.3% (7)	25.0% (3)	0.0% (0)	0.0% (0)	3.00 (0.85)

Willingness to continue in the program, recommend WitsOn to others
Please answer "yes" or "no" to each of the following questions.

	Yes	No
If given the opportunity, would you continue to participate in WitsOn?	71.4% (10)	28.6% (4)
Do you feel that participating in WitsOn was worth the time you spent?	71.4% (10)	28.6% (4)
Did you recommend or invite a friend or peer to join WitsOn *during this course period?*	38.5% (5)	61.5% (8)
Would you recommend WitsOn to a friend or peer *in the future?*	64.3% (9)	35.7% (5)

Please share any comments you may have about your responses to these questions. *(1 response)*
- I felt there were too many people. Maybe have separate sections based on more similar majors, like engineering separate from biology separate from chemistry, and if majors overlap, people can participate in multiple groups. That would make the information more specific to who was in the group.

Favorite WitsOn elements
What was your *favorite* part of the overall WitsOn experience? *(11 responses)*
- Email newsletters with the highlights for the week.

- That the program made it so it was entirely up to you, as to how much you wanted to participate.
- I liked the active community.
- I liked how when students would ask questions, that both other students and mentors could respond.
- I enjoyed being able to ask questions of the various mentors.
- Reading the mentor bios.
- I enjoyed looking at the life of various successful women, and learning about all the various possibilities. Being a first generation student, I never had anyone that I could learn from anywhere else.
- Having women in the career field comment on their experiences throughout college and in their career.
- Hearing from the instructors, both on how they got to their position and how they handle the work/life balance.
- Seeing the encouragement and the possibilities of being a female in a science field.
- I enjoyed reading about others' experiences and discussions on issues that affect me too.

Which discussion threads or topics were the *most* interesting or relevant to you? If you wish, please feel free to include the name or number of threads that stood out for you. *(6 responses)*
- I am applying to graduate school, so I was interested in peoples' experiences applying to and in grad school.
- The threads that were about the mentor bios in fields that I thought were interesting were the ones that I ever did.
- I was interested in the career profiles of mentors in the life sciences and discussions of academia vs. industry.
- I enjoyed the posts about the mentors explaining their methods to achieving the position they are in today.
- Discussions about balancing a scientific career and other aspects of life as a female in the coming years. Also just reading mentor bios about where they came from/how they got to where they are today.
- The threads about living as a woman with any science/engineering career and raising a family were very relevant to me.

Least favorite WitsOn elements
What was your *least favorite* part of the overall WitsOn experience? *(10 responses)*
- I never had any urge to log on to WitsOn.
- I was not pleased with the variety of experience represented by the mentors.
- The site wasn't the easiest to navigate. When I didn't get the newsletter I felt that I would have to sift through all of the discussion feeds and I simply didn't have that much time to devote to the program.
- It took place during the busiest weeks of my year this year and due to that I was unable to get as involved as I'd hoped.
- There were quite a few posts, so it does take some time to sift through.
- Finding the information.
- The website was hard to understand.
- It was a bit hard to use the interface.
- I did not like how unspecific it was and at times how overwhelming the information was. Sometimes I could not get to information for a week, and then I had to go through over 200 threads and figure out which ones seemed important. I think the search function should be done better.

- I had a bit of a hard time navigating the site. Some of the pages took a very long time to load (that might be because my computer is over 5 years old but it still took much longer than other things I load on the computer...).

Which discussion threads or topics were the *least* interesting or relevant to you? If you wish, please feel free to include the name or number of threads that stood out for you. *(4 responses)*
- Most of the academic ones, questions on graduate/undergraduate programs, specifics to certain careers, were not relevant to me because I am not considering engineering.
- Ones that simply described their careers or research. Although I think these are important since many people don't know what to do with their STEM major.
- I felt like the majority of the student threads were kind of pointless for me.
- It was sometimes difficult to find relevant threads. There were many threads about computer science and other fields I am not involved/interested in). It fine to have such threads as I'm sure many others found them valuable, but I wish there were an easier way to filter them out. (Maybe there was and I just couldn't figure it out).

Suggestions for improving WitsOn
What suggestions would you make for improving WitsOn? *(6 responses)*
- It was not very memorable.
- Improve the setup of the program itself; was very overwhelming with the amount of threads being posted and trying to keep up with them.
- If it would be possible to get a wider variety of mentors. That would make the program more applicable to students because of the wide range of topics covered.
- Break it down to fewer people. It was overwhelming and unhelpful.
- I would appreciate a more consistent newsletter with highlights, perhaps twice a week so it could cover more threads but not join the list of annoying daily emails that have a habit of filling inboxes.
- The search function needs improvement. Also, if there was a way of segregating the students more in the life sciences, engineering, and physical sciences it would be nice. Also, if it would be possible to have an easier format to ask questions of a mentor...perhaps having a specific time to IM with one of the mentors each week.

Please share any other comments you may have about your WitsOn experience. *(1 response)*
- Wish I could have participated more, however, really great idea!

Outcomes Attributed to WitsOn
In this section we asked respondents about the extent to which their WitsOn experience changed their confidence, interest in their career goals, motivation to pursue their goals, and their interest in pursuing additional mentoring.

Respondents reported an increase in each of the areas addressed in the survey. They reported the most impact on their interest in pursuing their goals, and their motivation to achieve their long-term goals, followed by their confidence in their ability to set their goals. They also reported an impact on their interest in participating in an offline mentoring program, one of the specific goals of the WitsOn program.

To what extent do you feel your WitsOn experience has changed...

	Strongly decreased 1	Somewhat decreased 2	Neither decreased nor increased 3	Somewhat increased 4	Strongly increased 5	Mean (SD)
...your confidence in your ability to *set* your ten-year goals?	0.0% (0)	0.0% (0)	42.9% (6)	57.1% (8)	0.0% (0)	3.57 (0.51)
...your confidence in your ability to *achieve* your ten-year goals?	0.0% (0)	0.0% (0)	57.1% (8)	35.7% (5)	7.1% (1)	3.50 (0.65)
...your *interest* in pursuing your ten-year goals?	0.0% (0)	0.0% (0)	35.7% (5)	64.3% (9)	0.0% (0)	3.64 (0.49)
...your *motivation* to pursue your ten-year goals?	0.0% (0)	0.0% (0)	42.9% (6)	50.0% (7)	7.1% (1)	3.64 (0.63)
...the *likelihood that you will achieve* your ten-year goals?	0.0% (0)	7.1% (1)	64.3% (9)	28.6% (4)	0.0% (0)	3.21 (0.58)
...your interest in participating in another *e-mentoring* program?	0.0% (0)	23.1% (3)	38.5% (5)	30.8% (4)	7.7% (1)	3.38 (0.87)
...your interest in participating in a *face-to-face mentoring* program?	0.0% (0)	7.1% (1)	42.9% (6)	28.6% (4)	21.4% (3)	3.64 (0.93)

Do you have any comments about the effects your WitsOn experience may have had on your career and academic goals? *(7 responses)*

- I think it has given me a wider girth on more than just going to med school or grad school.
- I have been struggling to come to terms with some aspects of academia (including academic dishonesty and data cherry-picking in the publish-or-perish environment and tough funding climate). Due to my interest in business and economics, I have been toying with the idea of switching my career focus from pure biochemistry to biotech. Reading about the often winding paths WitsOn mentors have taken in getting to their current fulfilling careers has made me more comfortable with not deciding on my final career until I have given the working world a try. Rather than jumping blindly into grad school before I have even decided on a research focus, I intend to spend some time working and develop a better idea of what I want to study. The program helped me to continue thinking through my dilemma of what to do and led me to seek out more career information from current lab coworkers and a previous lab mentor who all benefited from working for a couple years before beginning their PhD work.
- I think the WitsOn program was a great program and those who were able to get involved would get a lot out of it. Unfortunately, since none of the mentors were involved in the fields that I was looking into, I found that I was not as involved, and did not get as much out of it that I had hoped.
- No
- No effect at all
- It didn't really have any effect, because I did not find much relevant to what I intend upon doing.
- WitsOn did not have much of an impact on my life.

Career Decision-Making Self-Efficacy-Short Form (CDMSE-SF)

The questions in this scale are designed to assess respondents' confidence in their ability to make career decisions, across five areas (self-appraisal, gathering occupational information, goal selection, planning, and problem solving).

Students were quite confident in their decision-making abilities overall, and most confident in their goal selection and planning abilities across the five larger domains. The specific items for which students reported the highest self-efficacy were in selecting a major, determining the steps to successfully complete that major, and persisting toward a major or career goal even when frustrated. The items for which the group had the least self-efficacy were in making a career decision and then not worrying if it was right or wrong; identifying employers, firms, or institutions relevant to their career possibilities, and identifying reasonable major or career alternatives if the first choice was not available.

The instructions respondents received for this scale, followed by the data, are as follows:
The questions on this page will ask you to indicate your confidence in your ability to accomplish a number of tasks.
For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the following 10-point continuum.

0-1=No confidence at all
2-3=Very little confidence
4-5=Some confidence
6-7=Much confidence
8-9=Complete confidence

How much confidence do you have that you could…

	No Confidence		Very little confidence		Some confidence		Much confidence		Complete Confidence		Mean (SD)
	0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
Find information in the library or online about occupations that you are interested in.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30.0% (3)	30.0% (3)	20.0% (2)	20.0% (2)	7.30 (1.16)
Select one major from a list of potential majors you are considering.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	40.0% (4)	50.0% (5)	8.40 (0.70)
Make a plan of your goals for the next five years.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	50.0% (5)	10.0% (1)	30.0% (3)	7.60 (1.07)
Determine the steps to take if you are having trouble with all aspects of your chosen major.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	30.0% (3)	10.0% (1)	40.0% (4)	7.50 (1.65)
Accurately assess your abilities.	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	10.0% (1)	10.0% (1)	20.0% (2)	20.0% (2)	20.0% (2)	6.50 (2.27)

	No confidence		Very little confidence		Some confidence		Much confidence		Complete confidence		Mean (SD)
	0	1	2	3	4	5	6	7	8	9	
Select one occupation from a list of potential occupations you are considering.	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	50.0% (5)	0.0% (0)	20.0% (2)	6.40 (2.27)
Determine the steps you need to take to successfully complete your chosen major.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30.0% (3)	20.0% (2)	50.0% (5)	8.20 (0.92)
Persistently work at your major or career goal even when you feel frustrated.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	11.1% (1)	11.1% (1)	33.3% (3)	44.4% (4)	8.11 (1.05)
Determine what your ideal job would be.	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30.0% (3)	30.0% (3)	20.0% (2)	10.0% (1)	6.50 (2.17)
Find out the employment trends for an occupation over the next ten years.	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	20.0% (2)	30.0% (3)	30.0% (3)	0.0% (0)	6.50 (1.58)
Choose a career that will fit your preferred lifestyle.	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	10.0% (1)	20.0% (2)	30.0% (3)	20.0% (2)	7.00 (1.89)
Prepare a good resume.	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	30.0% (3)	0.0% (0)	30.0% (3)	20.0% (2)	10.0% (1)	6.40 (1.84)
Change majors if you did not like your first choice.	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	20.0% (2)	10.0% (1)	20.0% (2)	30.0% (3)	6.70 (2.50)
Decide what you value most in an occupation.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	20.0% (2)	20.0% (2)	20.0% (2)	30.0% (3)	7.30 (1.64)
Find out about the average earnings of people in an occupation.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (2)	20.0% (2)	30.0% (3)	30.0% (3)	7.70 (1.16)
Make a career decision and then not worry about whether it was right or wrong.	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	10.0% (1)	40.0% (4)	20.0% (2)	0.0% (0)	5.70 (2.58)
Change occupations if you are not satisfied with the one you enter.	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	20.0% (2)	10.0% (1)	20.0% (2)	30.0% (3)	0.0% (0)	6.10 (1.79)
Figure out what you are and are not ready to sacrifice to achieve your career goals.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (2)	10.0% (1)	20.0% (2)	20.0% (2)	30.0% (3)	7.30 (1.57)
Talk with a person already employed in the field you are interested in.	0.0% (0)	0.0% (0)	20.0% (2)	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (2)	20.0% (2)	30.0% (3)	6.40 (2.91)
Choose a major or career that will fit your interests.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	20.0% (2)	20.0% (2)	40.0% (4)	7.60 (1.65)
Identify employers, firms, and institutions relevant to your career possibilities.	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	10.0% (1)	40.0% (4)	10.0% (1)	6.00 (2.83)
Define the type of lifestyle you would like to live.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	20.0% (2)	20.0% (2)	20.0% (2)	30.0% (3)	7.40 (1.43)

	No confidence		Very little confidence		Some confidence		Much confidence		Complete confidence		Mean (SD)
	0	1	2	3	4	5	6	7	8	9	
Find information about graduate or professional schools.	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	10.0% (1)	10.0% (1)	30.0% (3)	30.0% (3)	7.10 (2.13)
Successfully manage the interview process.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30.0% (3)	0.0% (0)	10.0% (1)	20.0% (2)	40.0% (4)	0.0% (0)	6.40 (1.78)
Identify some reasonable major or career alternatives if you are unable to get your first choice.	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	20.0% (2)	20.0% (2)	20.0% (2)	6.30 (2.58)

What effects, if any, do you think your WitsOn experience had on your confidence in your ability to complete the above tasks? *(8 responses)*
- WitsOn helped with my confidence, and helps me to come to terms with the fact that finding the right career will take some time.
- Made me think more about the big picture, my end goals, my reasons for studying here
- WitsOn taught me how to know when the decision I've made is wrong and what to not deny it but just run with it and make a change.
- Very little. Maybe it has helped slightly with getting me to cast a wider net.
- It made me feel that a science career was not out of my reach.
- None
- None
- None

College Outcomes Questionnaire (COE)

The COE measures respondents' "expectations about the outcomes of obtaining a baccalaureate and graduate degree" and their perceived "cost-benefit ratio of achieving a college education" (Byars & Hackett, 1995; Hackett, Betz, Casas, & Rocha-Singh, 1992; in Byars, 1997, p. 42). The scales' items ask for respondents' level of agreement with each of the items, the majority being positive and two being negative.

Overall, this student group seemed to agree that pursuing a college degree would yield a positive return on their investment of time, effort, and resources. Respondents were most likely to agree that they would receive more respect with a college degree, and that a college degree would allow them to get a job where they could use their talents and creativity. They were least likely to agree that their college grades had much bearing on their future career, that future employers would worry about their competence, or that they would not get a "fair shake" in the job market (the last two being the only negatively worded items included in the scale). The group as a whole was more likely to agree that they would achieve positive outcomes from a college degree generally than from a graduate degree, despite the fact that the majority of respondents indicated that they intended to pursue a graduate or professional degree in their statement of long-term goals.

The instructions respondents received for this scale, followed by the data, are as follows:
The questions on this page will ask you about the extent to which you may expect certain outcomes if you complete a college degree.
Using the scale below, please indicate the degree to which you <u>agree</u> with each of the following statements.

0-1=Strongly disagree
2-3=Disagree
4-6=Neutral
7-8=Agree
9=Strongly agree

	Strongly disagree		Disagree		Neutral			Agree		Strongly agree	
	0	1	2	3	4	5	6	7	8	9	Mean (SD)
A college degree will allow me to obtain a well-paying job.	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	20.0% (2)	20.0% (2)	30.0% (3)	6.70 (2.83)
A college degree will allow me to get a job I will enjoy.	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (2)	30.0% (3)	20.0% (2)	20.0% (2)	6.70 (2.58)
I will receive more respect with a college degree.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	20.0% (2)	50.0% (5)	20.0% (2)	7.60 (1.43)
A college degree will allow me to get a job where I can use my talents and creativity.	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	0.0% (0)	20.0% (2)	20.0% (2)	20.0% (2)	30.0% (3)	7.20 (1.87)
My college grades will not have much bearing on my future career.	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)	30.0% (3)	0.0% (0)	30.0% (3)	20.0% (2)	0.0% (0)	0.0% (0)	4.80 (1.87)

	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Mean (SD)
	0	1	2	3	4	5	6	7	8	9	
I think I will be treated fairly in my career.	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	10.0% (1)	20.0% (2)	20.0% (2)	10.0% (1)	20.0% (2)	6.30 (2.21)
I think I will receive a salary comparable to others in my field.	0.0% (0)	0.0% (0)	20.0% (2)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	30.0% (3)	10.0% (1)	20.0% (2)	6.20 (2.53)
I think I will have the same opportunities for promotions as others in my field.	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	20.0% (2)	0.0% (0)	10.0% (1)	20.0% (2)	10.0% (1)	30.0% (3)	6.50 (2.46)
I worry that I won't get a "fair shake" in the job market.	0.0% (0)	10.0% (1)	30.0% (3)	0.0% (0)	10.0% (1)	10.0% (1)	10.0% (1)	0.0% (0)	20.0% (2)	10.0% (1)	4.70 (2.95)
I think I will be fairly rewarded for the contributions I make in my field.	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	30.0% (3)	30.0% (3)	10.0% (1)	20.0% (2)	6.90 (1.52)
I worry that employers will doubt my competence.	0.0% (0)	10.0% (1)	20.0% (2)	20.0% (2)	0.0% (0)	10.0% (1)	10.0% (1)	10.0% (1)	10.0% (1)	10.0% (1)	4.60 (2.80)
A college degree will allow me to have the kind of lifestyle I want.	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	10.0% (1)	20.0% (2)	0.0% (0)	20.0% (2)	30.0% (3)	6.30 (2.91)
How well I do in college will strongly affect my future career.	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	30.0% (3)	10.0% (1)	10.0% (1)	20.0% (2)	10.0% (1)	6.00 (1.94)
A graduate degree will allow me to obtain a well-paying job.	0.0% (0)	0.0% (0)	10.0% (1)	20.0% (2)	0.0% (0)	0.0% (0)	10.0% (1)	10.0% (1)	20.0% (2)	30.0% (3)	6.40 (2.76)
I will receive more respect with a graduate degree.	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	10.0% (1)	0.0% (0)	20.0% (2)	10.0% (1)	20.0% (2)	30.0% (3)	6.80 (2.35)
A graduate degree will expand my career options.	10.0% (1)	0.0% (0)	10.0% (1)	10.0% (1)	0.0% (0)	0.0% (0)	20.0% (2)	10.0% (1)	10.0% (1)	30.0% (3)	5.90 (3.21)
A graduate degree will allow me to get a job I will enjoy doing.	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	10.0% (1)	0.0% (0)	40.0% (4)	10.0% (1)	10.0% (1)	20.0% (2)	6.10 (2.64)
A graduate degree will allow me to get a job where I can use my talents and creativity.	10.0% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30.0% (3)	10.0% (1)	10.0% (1)	10.0% (1)	30.0% (3)	6.30 (2.79)

What effects, if any, do you think your WitsOn experience had on level of agreement you had with the above statements about college outcomes?
(1 response)
- A college degree/ graduate degree doesn't guarantee anything, it is more so about the person you are yourself.

Career Barriers Inventory (CBI)

The CBI asks participants about the expected likelihood of encountering certain barriers as they seek out and begin their careers. It also asks, about each barrier item, if encountered, the extent to which the respondent's career progress would be hindered. The inventory contains four areas, including choice of career, finding a job, job performance, and balancing a job with other aspects of life.

Students most frequently expected to encounter barriers in balancing work and other life responsibilities. The difficulty of finding a job was their second most frequently expected barrier. They also expected both of these barriers, if encountered, to have the most negative impact on their progress. Respondents felt they were least likely to encounter barriers related to performing their jobs.

The instructions respondents received for this scale, followed by the data, are as follows:
A "barrier" is a factor that interferes with progress in your job or career plans. Barriers can be "external" or "internal". External barriers are found in the environment--for example, job discrimination or low salary. Internal barriers are more psychological in nature--for example, low self-esteem. These barriers may occur regarding your choice of career, in finding a job, or while you are working in a job or career.

Please think about each of the common barriers listed below in terms of your own career. Then, for each, please indicate both

a) how likely you think it is that you may experience each one, and then;
b) how much each barrier would hinder or interfere with your career progress, if encountered.

For questions in subsection *a*, please use the following scale:
0-1=Very unlikely
2-3=Unlikely
4-5=Likely
6=Very likely

For questions in subsection *b*, please use the following scale:
0-1=Not at all
2-3=Very little
4-5=Somewhat
6=Completely

Choice of Career

How likely are you to encounter this barrier?

	Very unlikely		Unlikely		Likely		Very likely	
	0	**1**	**2**	**3**	**4**	**5**	**6**	**Mean (SD)**
Lacking information about possible jobs/careers	37.5% (3)	0.0% (0)	25.0% (2)	12.5% (1)	12.5% (1)	12.5% (1)	0.0% (0)	2.00 (1.93)
Being undecided about what job/career I would like	12.5% (1)	25.0% (2)	12.5% (1)	12.5% (1)	12.5% (1)	25.0% (2)	0.0% (0)	2.63 (1.92)
Being limited to certain career choices because of my gender	25.0% (2)	25.0% (2)	25.0% (2)	0.0% (0)	12.5% (1)	12.5% (1)	0.0% (0)	1.88 (1.81)
Being limited to certain career choices because of my race/ethnicity	50.0% (4)	0.0% (0)	37.5% (3)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	1.13 (1.25)

If encountered, how much would this barrier <u>hinder</u> your career progress?

	Not at all		Very little		Somewhat		Completely	
	0	**1**	**2**	**3**	**4**	**5**	**6**	**Mean (SD)**
Lacking information about possible jobs/careers	25.0% (2)	12.5% (1)	0.0% (0)	12.5% (1)	12.5% (1)	25.0% (2)	12.5% (1)	3.00 (2.39)
Being undecided about what job/career I would like	0.0% (0)	12.5% (1)	25.0% (2)	25.0% (2)	25.0% (2)	12.5% (1)	0.0% (0)	3.00 (2.39)
Being limited to certain career choices because of my gender	37.5% (3)	37.5% (3)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	12.5% (1)	1.50 (2.07)
Being limited to certain career choices because of my race/ethnicity	50.0% (4)	12.5% (1)	12.5% (1)	12.5% (1)	0.0% (0)	12.5% (1)	0.0% (0)	1.38 (1.85)

Finding a Job

How likely are you to encounter this barrier?

	Very unlikely		Unlikely		Likely		Very likely	
	0	1	2	3	4	5	6	Mean (SD)
Lacking the necessary experience for a job	0.0% (0)	28.6% (2)	0.0% (0)	14.3% (1)	28.6% (2)	28.6% (2)	0.0% (0)	3.29 (1.70)
Not being able to find a job after graduation	0.0% (0)	14.3% (1)	28.6% (2)	14.3% (1)	42.9% (3)	0.0% (0)	0.0% (0)	2.86 (1.21)
Not wanting to move away from my friends and/or family	28.6% (2)	0.0% (0)	14.3% (1)	28.6% (2)	14.3% (1)	14.3% (1)	0.0% (0)	2.43 (1.90)
Unsure of how to actually find a job	28.6% (2)	14.3% (1)	14.3% (1)	14.3% (1)	28.6% (2)	0.0% (0)	0.0% (0)	2.00 (1.73)
Tight economy	0.0% (0)	0.0% (0)	0.0% (0)	42.9% (3)	28.6% (2)	28.6% (2)	0.0% (0)	3.86 (0.90)
Not knowing the "right people" to get a job	0.0% (0)	14.3% (1)	0.0% (0)	57.1% (4)	14.3% (1)	0.0% (0)	14.3% (1)	3.29 (1.50)
Racial discrimination in hiring for a job	57.1% (4)	0.0% (0)	28.6% (2)	14.3% (1)	0.0% (0)	0.0% (0)	0.0% (0)	1.00 (1.29)
Sex discrimination in hiring for a job	14.3% (1)	14.3% (1)	42.9% (3)	0.0% (0)	14.3% (1)	0.0% (0)	14.3% (1)	2.43 (1.99)

If encountered, how much would this barrier hinder your career progress?

	Not at all		Very little		Somewhat		Completely	
	0	1	2	3	4	5	6	Mean (SD)
Lacking the necessary experience for a job	0.0% (0)	42.9% (3)	0.0% (0)	14.3% (1)	14.3% (1)	14.3% (1)	14.3% (1)	3.00 (2.08)
Not being able to find a job after graduation	0.0% (0)	14.3% (1)	14.3% (1)	0.0% (0)	42.9% (3)	14.3% (1)	14.3% (1)	3.71 (1.70)
Not wanting to move away from my friends and/or family	28.6% (2)	0.0% (0)	14.3% (1)	42.9% (3)	0.0% (0)	14.3% (1)	0.0% (0)	2.29 (1.80)
Unsure of how to actually find a job	28.6% (2)	0.0% (0)	14.3% (1)	0.0% (0)	14.3% (1)	28.6% (2)	14.3% (1)	3.14 (2.48)
Tight economy	0.0% (0)	14.3% (1)	0.0% (0)	42.9% (3)	42.9% (3)	0.0% (0)	0.0% (0)	3.14 (1.07)
Not knowing the "right people" to get a job	0.0% (0)	0.0% (0)	14.3% (1)	28.6% (2)	28.6% (2)	28.6% (2)	0.0% (0)	3.71 (1.11)
Racial discrimination in hiring for a job	57.1% (4)	0.0% (0)	14.3% (1)	0.0% (0)	14.3% (1)	14.3% (1)	0.0% (0)	1.57 (2.15)
Sex discrimination in hiring for a job	28.6% (2)	28.6% (2)	28.6% (2)	0.0% (0)	0.0% (0)	14.3% (1)	0.0% (0)	1.57 (1.72)

Performing Your Job

How likely are you to encounter this barrier?

	Very unlikely		Unlikely		Likely		Very likely	Mean (SD)
	0	1	2	3	4	5	6	
Not being able to perform my job well	37.5% (3)	25.0% (2)	25.0% (2)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	1.13 (1.13)
Lacking the required skills for my job	0.0% (0)	25.0% (2)	50.0% (4)	12.5% (1)	12.5% (1)	0.0% (0)	0.0% (0)	2.13 (0.99)
Being dissatisfied with my job/career	0.0% (0)	0.0% (0)	12.5% (1)	50.0% (4)	25.0% (2)	12.5% (1)	0.0% (0)	3.38 (0.92)
Not receiving support from my coworkers/supervisors	12.5% (1)	12.5% (1)	25.0% (2)	37.5% (3)	12.5% (1)	0.0% (0)	0.0% (0)	2.25 (1.28)
Fear of being considered unattractive to the opposite sex because of my job/career	50.0% (4)	37.5% (3)	0.0% (0)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.75 (1.04)
Difficulty dealing with "politics" at work	25.0% (2)	0.0% (0)	0.0% (0)	37.5% (3)	25.0% (2)	12.5% (1)	0.0% (0)	2.75 (1.83)
Racial discrimination in promotions in job/career	62.5% (5)	0.0% (0)	12.5% (1)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	1.00 (1.41)
Not being taken seriously at work because I'm a man/woman	12.5% (1)	12.5% (1)	37.5% (3)	37.5% (3)	0.0% (0)	0.0% (0)	0.0% (0)	2.00 (1.07)
Sexual harassment on the job	12.5% (1)	25.0% (2)	25.0% (2)	12.5% (1)	25.0% (2)	0.0% (0)	0.0% (0)	2.13 (1.46)
Sex discrimination in promotions in job/career	12.5% (1)	25.0% (2)	25.0% (2)	25.0% (2)	12.5% (1)	0.0% (0)	0.0% (0)	2.00 (1.31)
Lack of respect from my coworkers/supervisor because of my gender	12.5% (1)	12.5% (1)	37.5% (3)	25.0% (2)	12.5% (1)	0.0% (0)	0.0% (0)	2.13 (1.25)
Lack of respect from my coworkers/supervisor because of my race/ethnicity	50.0% (4)	0.0% (0)	50.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	1.00 (1.07)
Being the "token" in a job because of my gender	12.5% (1)	25.0% (2)	25.0% (2)	12.5% (1)	12.5% (1)	0.0% (0)	12.5% (1)	2.38 (1.92)
Being the "token" in a job because of my race/ethnicity	62.5% (5)	12.5% (1)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.63 (0.92)

If encountered, how much would this barrier hinder your career progress?

	Not at all		Very little		Somewhat		Completely	
	0	1	2	3	4	5	6	Mean (SD)
Not being able to perform my job well	25.0% (2)	0.0% (0)	0.0% (0)	12.5% (1)	25.0% (2)	25.0% (2)	12.5% (1)	3.38 (2.26)
Lacking the required skills for my job	0.0% (0)	12.5% (1)	12.5% (1)	0.0% (0)	12.5% (1)	50.0% (4)	12.5% (1)	4.13 (1.73)
Being dissatisfied with my job/career	12.5% (1)	0.0% (0)	25.0% (2)	12.5% (1)	37.5% (3)	12.5% (1)	0.0% (0)	3.00 (1.60)
Not receiving support from my coworkers/supervisors	12.5% (1)	25.0% (2)	0.0% (0)	37.5% (3)	12.5% (1)	12.5% (1)	0.0% (0)	2.50 (1.69)
Fear of being considered unattractive to the opposite sex because of my job/career	87.5% (7)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	0.13 (0.35)
Difficulty dealing with "politics" at work	25.0% (2)	0.0% (0)	12.5% (1)	25.0% (2)	12.5% (1)	12.5% (1)	12.5% (1)	2.88 (2.17)
Racial discrimination in promotions in job/career	50.0% (4)	0.0% (0)	12.5% (1)	12.5% (1)	0.0% (0)	12.5% (1)	12.5% (1)	2.00 (2.45)
Not being taken seriously at work because I'm a man/woman	25.0% (2)	0.0% (0)	12.5% (1)	25.0% (2)	12.5% (1)	25.0% (2)	0.0% (0)	2.75 (1.98)
Sexual harassment on the job	37.5% (3)	12.5% (1)	12.5% (1)	12.5% (1)	12.5% (1)	12.5% (1)	0.0% (0)	1.88 (1.96)
Sex discrimination in promotions in job/career	25.0% (2)	0.0% (0)	12.5% (1)	25.0% (2)	25.0% (2)	12.5% (1)	0.0% (0)	2.63 (1.85)
Lack of respect from my coworkers/supervisor because of my gender	37.5% (3)	12.5% (1)	12.5% (1)	0.0% (0)	12.5% (1)	12.5% (1)	12.5% (1)	2.25 (2.43)
Lack of respect from my coworkers/supervisor because of my race/ethnicity	50.0% (4)	12.5% (1)	12.5% (1)	25.0% (2)	0.0% (0)	0.0% (0)	0.0% (0)	1.13 (1.36)
Being the "token" in a job because of my gender	12.5% (1)	37.5% (3)	12.5% (1)	25.0% (2)	0.0% (0)	12.5% (1)	0.0% (0)	2.00 (1.60)
Being the "token" in a job because of my race/ethnicity	50.0% (4)	12.5% (1)	12.5% (1)	12.5% (1)	12.5% (1)	0.0% (0)	0.0% (0)	1.25 (1.58)

Balancing Your Job with Other Aspects of Your Life
How likely are you to encounter this barrier?

	Very unlikely		Unlikely		Likely		Very likely	Mean (SD)
	0	**1**	**2**	**3**	**4**	**5**	**6**	
Getting married	0.0% (0)	0.0% (0)	0.0% (0)	12.5% (1)	12.5% (1)	37.5% (3)	37.5% (3)	5.00 (1.07)
Having children	0.0% (0)	0.0% (0)	0.0% (0)	37.5% (3)	12.5% (1)	25.0% (2)	25.0% (2)	4.38 (1.30)
Not feeling supported by my family	50.0% (4)	12.5% (1)	25.0% (2)	12.5% (1)	0.0% (0)	0.0% (0)	0.0% (0)	1.00 (1.20)
Conflict between my marriage/family plans and my career plans	25.0% (2)	0.0% (0)	0.0% (0)	50.0% (4)	12.5% (1)	12.5% (1)	0.0% (0)	2.63 (1.77)
Not being able to find good daycare services for my children	12.5% (1)	0.0% (0)	37.5% (3)	50.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)	2.25 (1.04)
Feeling guilty about working while my children are young	12.5% (1)	0.0% (0)	25.0% (2)	37.5% (3)	12.5% (1)	12.5% (1)	0.0% (0)	2.75 (1.49)

If encountered, how much would this barrier hinder your career progress?

	Not at all		Very little		Somewhat		Completely	Mean (SD)
	0	**1**	**2**	**3**	**4**	**5**	**6**	
Getting married	25.0% (2)	12.5% (1)	12.5% (1)	25.0% (2)	25.0% (2)	0.0% (0)	0.0% (0)	2.5 (2.13)
Having children	12.5% (1)	0.0% (0)	0.0% (0)	50.0% (4)	25.0% (2)	12.5% (1)	0.0% (0)	3.13 (1.46)
Not feeling supported by my family	25.0% (2)	37.5% (3)	12.5% (1)	0.0% (0)	12.5% (1)	12.5% (1)	0.0% (0)	1.75 (1.83)
Conflict between my marriage/family plans and my career plans	25.0% (2)	12.5% (1)	25.0% (2)	0.0% (0)	0.0% (0)	37.5% (3)	0.0% (0)	2.50 (2.20)
Not being able to find good daycare services for my children	25.0% (2)	12.5% (1)	12.5% (1)	12.5% (1)	12.5% (1)	0.0% (0)	25.0% (2)	2.75 (2.43)
Feeling guilty about working while my children are young	25.0% (2)	0.0% (0)	12.5% (1)	25.0% (2)	12.5% (1)	25.0% (2)	0.0% (0)	2.75 (1.98)

While we did ask the question, "What effects, if any, do you think your WitsOn experience had on your feelings about the barriers listed above", no participants provided any responses.

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Education Research IRB
11/19/2012

Submission ID number: 2012-0841

Title: Women in Technology Sharing Online (WitsOn) Evaluation: Assessing Usage, Satisfaction, and Outcomes from an E-Mentoring Course

Principal Investigator: CHRISTINE PRIBBENOW

Point-of-contact:

IRB Staff Reviewer: JEFFREY NYTES

A designated ED IRB member conducted an expedited review of the above-referenced initial application. The study was approved by the IRB member for the period of 12 months with the expiration date of 11/18/2013. The study qualified for expedited review pursuant to 45 CFR 46.110 and, if applicable, 21 CFR 56.110 and 38 CFR 16.110 in that the study presents no more than minimal risk and involves:

Category 7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, or quality assurance methodologies

To access the materials approved by the IRB, including any stamped consent forms, recruitment materials and the approved protocol, if applicable, please log in to your ARROW account and view the documents tab in the submission's workspace.

If you requested a HIPAA waiver of authorization, altered authorization and/or partial authorization, please log in to your ARROW account and view the history tab in the submission's workspace for approval details.

Prior to starting research activities, please review the Investigator Responsibilities guidance (http://go.wisc.edu/m0lovn.), which includes a description of IRB requirements for submitting continuing review progress reports, changes of protocol and reportable events.

Please contact the appropriate IRB office with general questions: Health Sciences IRBs at 608-263-2362 or Education Research and Social & Behavioral Science IRBs at 608-263-2320. For questions related to this submission, contact the assigned staff reviewer.

University of Wisconsin-Madison
Research Participant Information and Consent Form

Title of the Study: Women in Technology Sharing Online (WitsOn): Assessing Usage, Satisfaction, and Outcomes from an E-Mentoring Course.
Principal Investigator: Christine Pribbenow, 608-263-4256, cmpribbenow@wisc.edu
Contact Person: Julia Nelson Savoy, 608-265-0001, jnsavoy@engr.wisc.edu

<u>Description of the Research</u>
Thank you for agreeing to participate in our survey about the online mentoring course, Women in Technology Sharing Online, or WitsOn. You have been asked to participate in our study because you signed up for the course or participated as someone affiliated with UW-Madison. We are interested in seeing what benefits our students may have gained from their participation in WitsOn, and what suggestions you may have for improving the program.

The purposes of this survey are to assess your satisfaction with WitsOn, how participating in WitsOn has contributed to your academic and career goal planning, and what your current academic and career goals may be. The results of the survey will be used to help improve the WitsOn experience for future users and to inform research about how undergraduate students make academic and career planning choices. Your participation may inform future mentoring or other programs and opportunities to support students like you, and your contribution is very important to us!

<u>What Will Participating Involve?</u>
The study involves completing two sections of an online survey. The first section is intended to serve as an evaluation of the WitsOn program. It is relatively brief and will take you approximately *10-15 minutes* to complete. It is very important that, if you agree to participate, that you complete these brief questions and share your opinions about your WitsOn experience.

The second major portion of the survey is designed to learn more about you and your academic and career goals and progress. It is intended to serve as a lens for interpreting your WitsOn experience, but will also provide a foundation for future research about the career development of students interested in STEM. This portion of the survey is more comprehensive and may take as long as *30 minutes* to complete, depending upon your responses to some items. Participating in this portion of the survey will support potential future doctoral student research and would be very valuable to us.

If you choose to complete both sections of the survey, it may take you as long as *45 minutes* to answer all of the questions.

<u>How Will Confidentiality be Protected?</u>
The results from you and your peers will be reported in aggregate form; your answers will not identify you as an individual.

<u>Contact Information for Questions or Concerns</u>
Your participation in this survey is voluntary and you can withdraw at any time with no penalty. Please complete the survey by December 14, 2012. If you have questions about this questionnaire or how the data will be used, please contact Julia Nelson Savoy, Associate Research Specialist, WISELI, Madison, WI, jnsavoy@engr.wisc.edu, (608) 265-0001. If you have any questions about your rights as a research participant, please contact the UW-Madison IRB at (608) 263-2320.

*1. Do you consent to participate in this study?

○ Yes, I consent

○ No, I do not consent

Thank you for your interest in our study. Because you did not consent to participate, we will not contact you again regarding the study.

If you have any questions or concerns, please feel free to contact Julia Nelson Savoy at 608-265-0001 or jnsavoy@engr.wisc.edu.

Section One: Evaluating WitsOn

About Your WitsOn Experience: Using WitsOn

The questions on this page assess how you learned about and used WitsOn during the six-week course period.

2. How did you learn about WitsOn? (*Please check all that apply.*)

☐ Email, Facebook post, Tweet, or other suggestion from *a friend or peer*

☐ Email, Facebook post, Tweet, or other suggestion from *a faculty member*

☐ Email, Facebook post, Tweet, or other suggestion from *someone else in your school or college* (e.g., a student services advisor, or department advisor)

☐ Media about WitsOn (e.g., *New York Times* article)

☐ Other

(*Please specify*)

[   ]

3. How difficult or easy did you find it to access and navigate within WitsOn?

○ Very difficult

○ Difficult

○ Neither difficult nor easy

○ Easy

○ Very easy

4. On average, how many *minutes per week* did you use WitsOn?

(Time spent can include reading posts or instructor biographies, watching the lead mentor videos, posting questions, and responding to mentors and peers.)

○ 0-20 minutes per week

○ 21-40 minutes per week

○ 41-60 minutes per week

○ Between 1 and 2 hours per week

○ Between 2 and 3 hours per week

○ More than 3 hours per week

5. During the six-week course, how many weeks did you log onto WitsOn?

○ 0-1 week of 6

○ 2-3 weeks of 6

○ 4-5 weeks of 6

○ All 6 weeks

6. How often did you...

	Never	Rarely	Sometimes	Often	Very often
...post a new discussion thread?	○	○	○	○	○
...receive a response from *a peer* to your posts?	○	○	○	○	○
...receive a response from *an instructor* to your posts?	○	○	○	○	○
...respond to *posts initiated by student peers*?	○	○	○	○	○
...respond to an *instructor's note, post, or biography*?	○	○	○	○	○

About Your WitsOn Experience: Participation Outcomes

The questions on this page ask about the goals you had for your participation in the WitsOn program, whether or not you feel those goals were achieved, and other outcomes.

7. Why did you participate in the WitsOn program? What goals did you have for your participation in WitsOn?

8. Which goals for your participation, if any, were unmet, and why?

9. Imagine yourself ten years into the future. What academic or career goals would you like to have achieved by then? For example, what kind of degree program(s) would you like to have completed, or position do you hope to have secured?

10. To what extent do you feel your WitsOn experience has changed...

	Strongly decreased	Somewhat decreased	Neither decreased nor increased	Somewhat increased	Strongly increased
...your confidence in your ability to *set* your ten-year goals?	○	○	○	○	○
...your confidence in your ability to *achieve* your ten-year goals?	○	○	○	○	○
...your *interest* in pursuing your ten-year goals?	○	○	○	○	○
...your *motivation* to pursue your ten-year goals?	○	○	○	○	○
...the *likelihood that you will achieve* your ten-year goals?	○	○	○	○	○
...your interest in participating in another *e-mentoring* program?	○	○	○	○	○
...your interest in participating in a *face-to-face mentoring* program?	○	○	○	○	○

11. Do you have any comments about the effects your WitsOn experience may have had on your career and academic goals?

About Your WitsOn Experience: Satisfaction and Feedback

The questions on this page ask about your satisfaction with your WitsOn experience, and for your input on improving future versions of the program.

12. Please answer "yes" or "no" to each of the following questions.

	Yes	No
If given the opportunity, would you continue to participate in WitsOn?	○	○
Do you feel that participating in WitsOn was worth the time you spent?	○	○
Did you recommend or invite a friend or peer to join WitsOn *during this course period?*	○	○
Would you recommend WitsOn to a friend or peer *in the future?*	○	○

Please share any comments you may have about your responses to these questions.

13. What was your *favorite* part of the overall WitsOn experience?

14. What was your *least favorite* part of the overall WitsOn experience?

15. Which discussion threads or topics were the *most* interesting or relevant to you? If you wish, please feel free to include the name or number of threads that stood out for you.

16. Which discussion threads or topics were the *least* interesting or relevant to you? If you wish, please feel free to include the name or number of threads that stood out for you.

17. How satisfied are you with...

	Not at all	A little	Somewhat	Very	Extremely	Not applicable
...the *peer interaction* you experienced in WitsOn?	○	○	○	○	○	○
...the *instructor interaction* you experienced in WitsOn?	○	○	○	○	○	○
...the *lead mentor interaction* you experienced in WitsOn?	○	○	○	○	○	○
...your *overall* WitsOn experience?	○	○	○	○	○	○

18. What suggestions would you make for improving WitsOn?

19. Please share any other comments you may have about your WitsOn experience.

Section Two: Your Academic and Career Progress

About You

The questions on this page ask about your background, including your personal characteristics such as gender, and about your academic and career progress.

20. What is your sex?

- ○ Female
- ○ Male

21. Are you Hispanic or Latina/o?

- ○ Yes
- ○ No

22. Please check all the categories that describe your race.

- ☐ African American or Black
- ☐ Asian
- ☐ American Indian or Alaskan Native
- ☐ Caucasian or White
- ☐ Native Hawaiian or other Pacific Islander
- ☐ Other

(*Please specify*)

23. What is your citizenship status?

- ○ U.S. Citizen
- ○ U.S. Permanent Resident
- ○ Non-Resident Alien (J-1, H-1B, O-1 status, etc.)

24. Please answer "yes" or "no" to the following questions.

	Yes	No
Are you the first in your immediate family to attend college?	○	○
Have you ever been an undergraduate student at another school, college, or university, prior to coming to UW-Madison?	○	○
Do you have any degrees or credentials from an institution other than UW-Madison?	○	○
Have you changed your declared major while an undergraduate at UW-Madison?	○	○

25. Please check the item that best describes the degree program in which you are *currently* enrolled.

○ Associate's Degree (e.g., AA, AS)

○ Bachelor's Degree (e.g., BA, BS)

○ Master's level program (e.g., MA, MS, MFA, MSW, MEd, MBA)

○ Doctor of Medicine (MD)

○ Juris Doctor (JD)

○ Doctor of Philosophy (PhD)

○ Other

(*Please specify*)

[   ]

26. What is your current major or program of study? If you are completing a second major, please include both.

[   ]

27. Are you completing any certificates?

○ Yes

○ No

If yes, please name the certificate(s) program(s).

[   ]

28. What is your...

	3.00 or below	3.01-3.50	3.51-3.60	3.61-3.70	3.71-3.80	3.81-3.90	3.91-4.00
...*cumulative* GPA?	○	○	○	○	○	○	○
...GPA *in your major*?	○	○	○	○	○	○	○

29. How would you compare your performance in your major to that of your peers?

○ Below that of my peers

○ About the same as my peers

○ Above that of my peers

30. In what semester and year do you anticipate graduating from UW-Madison?

○ Fall 2012

○ Spring 2013

○ Summer 2013

○ Fall 2013

○ Spring 2014

○ Summer 2014

○ Fall 2014

○ Spring 2015

○ Summer 2015

Other (*please specify*)

[   ]

31. What is the likelihood that you will...

	Very unlikely	Somewhat unlikely	Neither unlikely nor likely	Somewhat likely	Very likely
...*change your major* before graduating from UW-Madison?	○	○	○	○	○
...*transfer to another institution* before graduating from UW-Madison?	○	○	○	○	○
...*leave school* and not complete your degree program?	○	○	○	○	○

If you have ever been an undergraduate student at another school, college, or university...

32. Where did you previously attend school as an undergraduate student?

33. What was your major or program of study at your previous institution?

34. Why did you come to UW-Madison to continue your undergraduate career?

If you have ever changed your major while at UW-Madison...

35. What was your previous major or majors?

36. Why did you decide to change your major?

If you think that you may change your major while at UW-Madison...

37. Why do you think you may change majors?

38. What do you think your new major choice will be?

If you think that you may leave school before completing your degree program...

39. Why do you think you may leave school?

The questions on this page will ask you to indicate your confidence in your ability to accomplish a number of tasks.

For each statement below, please read carefully and indicate how much confidence you have that you could accomplish each of these tasks by marking your answer according to the following 10-point continuum.

0-1=No confidence at all
2-3=Very little confidence
4-5=Some confidence
6-7=Much confidence
8-9=Complete confidence

40. How much confidence do you have that you could:

	0	1	2	3	4	5	6	7	8	9
Find information in the library or online about occupations that you are interested in.	○	○	○	○	○	○	○	○	○	○
Select one major from a list of potential majors you are considering.	○	○	○	○	○	○	○	○	○	○
Make a plan of your goals for the next five years.	○	○	○	○	○	○	○	○	○	○
Determine the steps to take if you are having trouble with all aspects of your chosen major.	○	○	○	○	○	○	○	○	○	○
Accurately assess your abilities.	○	○	○	○	○	○	○	○	○	○
Select one occupation from a list of potential occupations you are considering.	○	○	○	○	○	○	○	○	○	○
Determine the steps you need to take to successfully complete your chosen major.	○	○	○	○	○	○	○	○	○	○
Persistently work at your major or career goal even when you feel frustrated.	○	○	○	○	○	○	○	○	○	○
Determine what your ideal job would be.	○	○	○	○	○	○	○	○	○	○
Find out the employment trends for an occupation over the next ten years.	○	○	○	○	○	○	○	○	○	○
Choose a career that will fit your preferred lifestyle.	○	○	○	○	○	○	○	○	○	○
Prepare a good resume.	○	○	○	○	○	○	○	○	○	○
Change majors if you did not like your first choice.	○	○	○	○	○	○	○	○	○	○
Decide what you value	○	○	○	○	○	○	○	○	○	○

most in an occupation.

Find out about the average earnings of people in an occupation.	○	○	○	○	○	○	○	○	○	○
Make a career decision and then not worry about whether it was right or wrong.	○	○	○	○	○	○	○	○	○	○
Change occupations if you are not satisfied with the one you enter.	○	○	○	○	○	○	○	○	○	○
Figure out what you are and are not ready to sacrifice to achieve your career goals.	○	○	○	○	○	○	○	○	○	○
Talk with a person already employed in the field you are interested in.	○	○	○	○	○	○	○	○	○	○
Choose a major or career that will fit your interests.	○	○	○	○	○	○	○	○	○	○
Identify employers, firms, and institutions relevant to your career possibilities.	○	○	○	○	○	○	○	○	○	○
Define the type of lifestyle you would like to live.	○	○	○	○	○	○	○	○	○	○
Find information about graduate or professional schools.	○	○	○	○	○	○	○	○	○	○
Successfully manage the interview process.	○	○	○	○	○	○	○	○	○	○
Identify some reasonable major or career alternatives if you are unable to get your first choice.	○	○	○	○	○	○	○	○	○	○

The above questions, the Career Decision-Making Self-Efficacy Scale-Short Form, were originally published by Taylor & Betz (1983), and then revised by Betz et al. (1994 and 1996). The questions are drawn from Hird (1995).

41. What effects, if any, do you think your WitsOn experience had on your confidence in your ability to complete the above tasks?

College Outcomes Questionnaire

The questions on this page will ask you about the extent to which you may expect certain outcomes if you complete a college degree.

42. Using the scale below, please indicate the degree to which you <u>agree</u> with each of the following statements.
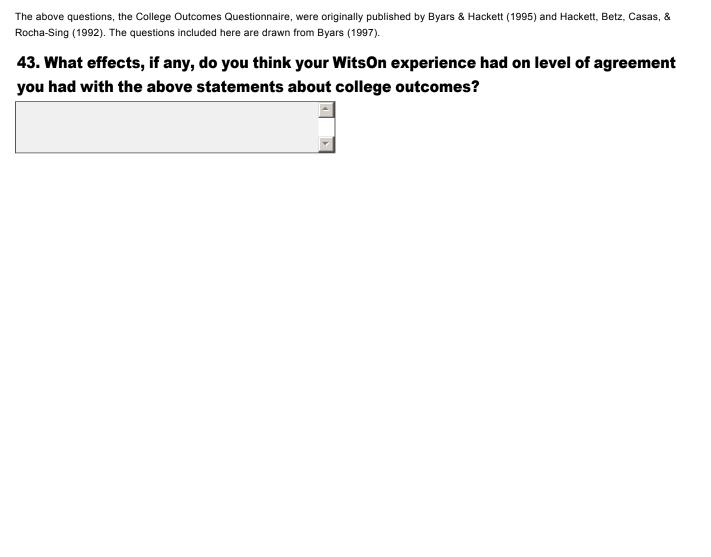
0-1=Strongly disagree
2-3=Disagree
4-6=Neutral
7-8=Agree
9=Strongly agree

	0	1	2	3	4	5	6	7	8	9
A college degree will allow me to obtain a well-paying job.	○	○	○	○	○	○	○	○	○	○
A college degree will allow me to get a job I will enjoy.	○	○	○	○	○	○	○	○	○	○
I will receive more respect with a college degree.	○	○	○	○	○	○	○	○	○	○
A college degree will allow me to get a job where I can use my talents and creativity.	○	○	○	○	○	○	○	○	○	○
My college grades will not have much bearing on my future career.	○	○	○	○	○	○	○	○	○	○
I think I will be treated fairly in my career.	○	○	○	○	○	○	○	○	○	○
I think I will receive a salary comparable to others in my field.	○	○	○	○	○	○	○	○	○	○
I think I will have the same opportunities for promotions as others in my field.	○	○	○	○	○	○	○	○	○	○
I worry that I won't get a "fair shake" in the job market.	○	○	○	○	○	○	○	○	○	○
I think I will be fairly rewarded for the contributions I make in my field.	○	○	○	○	○	○	○	○	○	○
I worry that employers will doubt my competence.	○	○	○	○	○	○	○	○	○	○
A college degree will allow me to have the kind of lifestyle I want.	○	○	○	○	○	○	○	○	○	○
How well I do in college	○	○	○	○	○	○	○	○	○	○

will strongly affect my future career.										
A graduate degree will allow me to obtain a well-paying job.	○	○	○	○	○	○	○	○	○	○
I will receive more respect with a graduate degree.	○	○	○	○	○	○	○	○	○	○
A graduate degree will expand my career options.	○	○	○	○	○	○	○	○	○	○
A graduate degree will allow me to get a job I will enjoy doing.	○	○	○	○	○	○	○	○	○	○
A graduate degree will allow me to get a job where I can use my talents and creativity.	○	○	○	○	○	○	○	○	○	○

The above questions, the College Outcomes Questionnaire, were originally published by Byars & Hackett (1995) and Hackett, Betz, Casas, & Rocha-Sing (1992). The questions included here are drawn from Byars (1997).

43. What effects, if any, do you think your WitsOn experience had on level of agreement you had with the above statements about college outcomes?

A "barrier" is a factor that interferes with progress in your job or career plans. Barriers can be "external" or "internal". External barriers are found in the environment--for example, job discrimination or low salary. Internal barriers are more psychological in nature--for example, low self-esteem. These barriers may occur regarding your choice of career, in finding a job, or while you are working in a job or career.

Please think about each of the common barriers listed below in terms of your own career. Then, for each, please indicate both

a) how likely you think it is that you may experience each one, and then;
b) how much each barrier would hinder or interfere with your career progress, if encountered.

For questions in subsection *a*, please use the following scale:
0-1=Very unlikely
2-3=Unlikely
4-5=Likely
6=Very likely

For questions in subsection *b*, please use the following scale:
0-1=Not at all
2-3=Very little
4-5=Somewhat
6=Completely

44. *Choice of Career*

	How likely are you to encounter this barrier?	If encountered, how much would this barrier hinder your career progress?
Lacking information about possible jobs/careers	[▼]	[▼]
Being undecided about what job/career I would like	[▼]	[▼]
Being limited to certain career choices because of my gender	[▼]	[▼]
Being limited to certain career choices because of my race/ethnicity	[▼]	[▼]

45. *Finding a Job*

	How likely are you to encounter this barrier?	If encountered, how much would this barrier <u>hinder</u> your career progress?
Lacking the necessary experience for a job	⏷	⏷
Not being able to find a job after graduation	⏷	⏷
Not wanting to move away from my friends and/or family	⏷	⏷
Unsure of how to actually find a job	⏷	⏷
Tight economy	⏷	⏷
Not knowing the "right people" to get a job	⏷	⏷
Racial discrimination in hiring for a job	⏷	⏷
Sex discrimination in hiring for a job	⏷	⏷

46. *Performing Your Job*

	How likely are you to encounter this barrier?	If encountered, how much would this barrier <u>hinder</u> your career progress?
Not being able to perform my job well	[▼]	[▼]
Lacking the required skills for my job	[▼]	[▼]
Being dissatisfied with my job/career	[▼]	[▼]
Not receiving support from my coworkers/supervisors	[▼]	[▼]
Fear of being considered unattractive to the opposite sex because of my job/career	[▼]	[▼]
Difficulty dealing with "politics" at work	[▼]	[▼]
Racial discrimination in promotions in job/career	[▼]	[▼]
Not being taken seriously at work because I'm a man/woman	[▼]	[▼]
Sexual harassment on the job	[▼]	[▼]
Sex discrimination in promotions in job/career	[▼]	[▼]
Lack of respect from my coworkers/supervisor because of my gender	[▼]	[▼]
Lack of respect from my coworkers/supervisor because of my race/ethnicity	[▼]	[▼]
Being the "token" in a job because of my gender	[▼]	[▼]
Being the "token" in a job because of my race/ethnicity	[▼]	[▼]

47. *Balancing Your Job with Other Aspects of Your Life*

	How likely are you to encounter this barrier?	If encountered, how much would this barrier <u>hinder</u> your career progress?
Getting married	[dropdown]	[dropdown]
Having children	[dropdown]	[dropdown]
Not feeling supported by my family	[dropdown]	[dropdown]
Conflict between my marriage/family plans and my career plans	[dropdown]	[dropdown]
Not being able to find good daycare services for my children	[dropdown]	[dropdown]
Feeling guilty about working while my children are young	[dropdown]	[dropdown]

The above questions, the Career Barriers Inventory, were originally published by Swanson & Tokar (1991). The questions included here are drawn from Byars (1997), using modifications reported in Byars & Hackett (1996).

48. What effects, if any, do you think your WitsOn experience had on your feelings about the barriers listed above?

[text box]

APPENDIX C: STUDY CORRESPONDENCE

Pre-Notice Email
Date Sent: December 2, 2012
Subject Line: Evaluation of the WitsOn Program

Body:
Hello,

Tomorrow morning you will receive an e-mail invitation to participate in a survey about your participation in the Women in Technology Sharing Online (WitsOn) program, co-sponsored by Harvey Mudd College and Piazza. When the email arrives, please click on the link and complete the survey promptly. We are surveying all students from the University of Wisconsin-Madison who joined the WitsOn course.

We are conducting this survey in order to learn about how you used WitsOn, how satisfied you are with your experience, and about your academic and career goals as someone who participated in an e-mentoring program. The results of the survey will be used to improve the WitsOn experience for future users and inform research about how students make academic and career planning choices. Your participation may also inform future mentoring programs and opportunities to support students like you, and your contribution is very important to us!

If you have any questions about the survey or how your responses might be used, please feel free to contact me.

Thank you in advance for your help!

Sincerely,
Julia Nelson Savoy, M.S.
Associate Research Specialist
Women in Science and Engineering Leadership Institute (WISELI)
College of Engineering
University of Wisconsin-Madison
Phone: 608-265-0001
Email: jnsavoy@engr.wisc.edu
Web: http://wiseli.engr.wisc.edu/

Invitation to Participate in Survey
Date Sent: December 3, 2012
Subject Line: Invitation to Evaluate the WitsOn Program--Please Respond by December 17

Body:
Hello,

You are invited to participate in a study about the online mentoring course, Women in Technology Sharing Online, or WitsOn. You have been asked to participate in our study because you signed up for the WitsOn course or participated as someone affiliated with UW-Madison. The link to participate is at the bottom of this page.

The purposes of the survey are to assess your satisfaction with WitsOn, how participating in WitsOn has contributed to your academic and career goal planning, and what your current academic and career goals may be. The results of the survey will be used to help improve the WitsOn experience for future users and to inform research about how undergraduate students make academic and career planning choices. Your participation may inform future mentoring or other programs and opportunities to support students like you, and your contribution is very important to us!

The study involves completing two sections of an online survey. The first section is an evaluation of the WitsOn program. It is relatively brief and will take you approximately 10-15 minutes to complete. It is very important that, if you agree to participate, that you complete these brief questions and share your opinions about your WitsOn experience. If you agree to participate at all, it is very important that you complete Section One.

The second major portion of the survey is designed to learn more about you and your academic and career goals and progress. It is intended to serve as a lens for interpreting your WitsOn experience, but will also provide a foundation for future research about the career development of students interested in STEM. This portion of the survey is more comprehensive and may take as long as 30 minutes to complete depending on how you respond to certain questions. Participating in this portion of the survey will support potential future doctoral student research and would be very valuable to me. I am extremely grateful for any time you can commit to completing this part of the survey.

If you choose to complete both sections of the survey, it may take you as long as 45 minutes to answer all of the questions.

The results from you and your peers will be reported in aggregate form; your answers will not identify you as an individual. Your participation in this survey is voluntary and you can withdraw at any time with no penalty. Please complete the survey by Monday, December 17, 2012. If you have questions about this questionnaire or how the data will be used, please contact Julia Nelson Savoy, Associate Research Specialist, WISELI, Madison, WI, jnsavoy@engr.wisc.edu, (608) 265-0001. If you have any questions about your rights as a research participant, please contact the UW-Madison IRB at (608) 263-2320.

Thank you very much for your time and valuable participation in this study!

Sincerely,
Julia Nelson Savoy
Associate Research Specialist
Women in Science and Engineering Leadership Institute (WISELI)
College of Engineering
University of Wisconsin-Madison
Phone: (608) 265-0001
Email: jnsavoy@engr.wisc.edu
Web: http://wiseli.engr.wisc.edu/

To participate, click here: https://www.surveymonkey.com/s.aspx .

To Opt Out: https://www.surveymonkey.com/optout.aspx

Reminder Email #1
Subject Line: WitsOn Evaluation: Final Reminder, Due December 17
Date Sent: December 12, 2012

Body:
About a week ago, we e-mailed you a survey about your experience with the e-mentoring program, WitsOn, as someone who participated from UW-Madison. If you have already completed the survey, thank you for your participation. If not, please take a moment and complete the survey today. Depending on how much of the survey you wish to complete, your response to the survey could take less than 15 minutes.

With your help, this research will give decision-makers a better understanding of the WitsOn program, and inform decisions about the program and its continuation, as well as helping researchers to conduct future research about who participates in STEM careers, and why. It is very important we hear from you.

Thank you for your time and valuable participation! If you have any questions, comments, or concerns, please feel free to contact me.

Sincerely,
Julia Nelson Savoy
Associate Research Specialist
Women in Science and Engineering Leadership Institute (WISELI)
College of Engineering
University of Wisconsin-Madison
Phone: (608) 265-0001
Email: jnsavoy@engr.wisc.edu
Web: http://wiseli.engr.wisc.edu/

Click here to participate: https://www.surveymonkey.com/s.aspx

Click here if you wish to opt out from further emails about this study:
https://www.surveymonkey.com/optout.aspx

Reminder Email #2
Subject Line: WitsOn Evaluation: Deadline Extended to January 4
Date Sent: December 19, 2012

Body:
A few weeks ago, we contacted you regarding a survey about your experience with WitsOn. We had originally set the final response date as December 17, but have only received a few responses so far. It is a very busy time in the semester and we know you have many obligations, especially during the final exam period.

Because we would like to provide the best and most complete feedback to the WitsOn program administrators, we have extended the survey response window to Friday, January 4, 2013.

It is very important that we hear from you. If you are willing, *please take a moment and complete the survey today.* Click here to participate: https://www.surveymonkey.com/s.aspx

Thank you for your time and valuable participation!

Sincerely,
Julia Nelson Savoy
Associate Research Specialist
Women in Science and Engineering Leadership Institute (WISELI)
College of Engineering
University of Wisconsin-Madison
Phone: (608) 265-0001
Email: jnsavoy@engr.wisc.edu
Web: http://wiseli.engr.wisc.edu/

To opt out: https://www.surveymonkey.com/optout.aspx

Reminder Email #3
Subject Line: Final Reminder--WitsOn Evaluation
Date Sent: January 2, 2013

Body:
Several weeks ago, we contacted you regarding a survey about your experience with WitsOn. We had originally set the final response date as December 17, but have still only received a few responses.

Because we would like to provide the best and most complete feedback to the WitsOn program administrators, we have extended the survey response deadline to *Friday, January 4, 2013.* We are interested in your feedback no matter how much or little you participated in the WitsOn course.

If you are willing, please take a moment and complete the survey today. Click here to participate: https://www.surveymonkey.com/s.aspx

Thank you for your time and valuable participation!

Sincerely,
Julia Nelson Savoy
Associate Research Specialist
Women in Science and Engineering Leadership Institute (WISELI)
College of Engineering
University of Wisconsin-Madison
Phone: (608) 265-0001
Email: jnsavoy@engr.wisc.edu
Web: http://wiseli.engr.wisc.edu/

To opt out: https://www.surveymonkey.com/optout.aspx