

Assessing Usability of an Academic Advising Website

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April 15, 2016

Master of Arts in Technology and Communication thesis project

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Abstract

The purpose of this study was to employ usability testing to assess how easily students find and understand essential academic information on the Duke University Academic Advising Center website. The study will contribute to the improvement of the website and provide much-needed information for other colleges and universities attempting to convey similar information on their sites.

Usability testing with five desktop and five mobile users revealed that the Duke advising website is well-built for a highly usable experience, thanks in large part to a top-level navigation that is at once instructive, navigable, and engaging. However, the site suffers from a number of problems of varying severity that require attention in order to serve all users.

The testing results demonstrate the importance of presenting advising information in a way that is visually appealing, logically organized, and easily understandable for students. Above all, the success of the study in identifying site strengths and weaknesses shows the importance of universities performing usability testing on their own advising websites and provides a useful template for setting up such a project.

Assessing Usability of an Academic Advising Website

Undergraduate education is becoming more complex every year. Our collective knowledge is always expanding, and in a world that is increasingly connected through technology, documenting and sharing that knowledge is becoming easier and easier. For colleges and universities, this means new fields of study, new institution-specific programs, and more interdisciplinary collaboration. It is becoming increasingly difficult for students to keep abreast of all their academic and co-curricular options and to determine what courses, degree programs, and other academic opportunities are right for them overall and at a given time. I witnessed these trends in my day-to-day work in the Academic Advising Center at Duke University from 2013 to 2015, and those observations are backed up by the reports of researchers such as Biletskiy, Brown, and Ranganathan (2008), who list some of the concepts advisers must analyze, calling advising “a time consuming and cumbersome undertaking” (p. 4508). In my first fall semester at Duke, the university added a new global health co-major and minor (and eliminated the global health certificate) and introduced a new university-wide initiative in problem-focused interdisciplinary study that connects undergraduates to faculty and graduate students through five core themes and dozens of project teams. More changes followed in each subsequent semester, including the introduction of many new classes and a continual expansion of opportunities for undergraduate research and interdisciplinary collaboration.

Fortunately for students, help navigating this ever-changing information is available in the form of academic advisers. Feghali, Zbib, and Hallal (2011) say, “Student advising is an essential component of a successful academic experience” (p. 82).

Advisers guide students through their academic options, helping ensure their advisees complete curricular requirements, find fulfilling majors, and select courses and other opportunities that interest them and will contribute to their long-term goals (Guidry, 2012; Light, 2001). Light (2001) cites good academic advising as the most-mentioned challenge in his 10 years of interviews with students and faculty, and Soria (2012) demonstrates that advising satisfaction plays a role in retaining students and increasing their sense of belonging.

Clearly, there is a great deal of ground to cover in the interactions between students and their advisers. Universities' academic advising websites can play a key role in aiding this process, providing students with information on requirements, placement, courses, majors, and resources via a favored information channel for students, the World Wide Web. Nearly all respondents in a Cotton and Jelenewicz (2006) study of college students stated that they own a computer and use the Internet several times a day. Jones, Johnson-Yale, Millermaier, and Pérez (2009) found that most of their student subjects had been using the Internet for more than a decade. Much of that Internet use is occurring on mobile devices. Dahlstrom and Bischel (2014) write that 86 percent of undergraduates own smartphones (p. 14) and that more than three-quarters of students feel it is important to access their schools' learning management systems from a handheld device (p. 25). Some schools have developed semi-automated online advising tools that produce suggestions for specific courses and majors (Steele & Thurmond, 2009). If effective, these Web-based tools can limit the time students and advisers spend going over logistics, allowing them to concentrate on substantive conversations about goals and how things are going so far. Light (2001) illustrates some of the in-depth topics, such as building

relationships with faculty and managing personal and study time, that can be addressed once discussion of course planning is out of the way.

Reaching students online is not as simple as just putting the information out there for them to find. Nielsen (2010) finds that college students, while comfortable online, are not all technology experts and often miss information, even key items they set out to find. Loranger and Nielsen (2013) draw similar conclusions in their study of teens' Web abilities. It is crucial then that academic advising websites capitalize on their potential. Their effectiveness should be evaluated, and changes should be implemented in order to maximize utility and contribute to the efficiency and substance of adviser-student interactions. The purpose of this study was to employ usability testing to assess how easily students find and understand essential academic information on the Duke University Academic Advising Center website. The study will contribute to the improvement of the website and provide much-needed information for other colleges and universities attempting to convey similar information on their sites.

In order to design this study, I examined the previous literature on college academic advising websites as well as much of the literature on similar websites and on usability testing. I sought insight on practices and pitfalls affecting website usability and on the practice of usability testing itself. What I read in the literature impacted my study design and informed my recommendations for how to improve the Duke advising site.

Literature Review

As Boatright-Horowitz, Langley, and Gunnip (2009) note, little research has been carried out on the effectiveness of academic advising websites. There have been few published studies, even on an individual-school level. Of those studies, most have

focused on support for distance and online students, for whom online advising tools are even more critical than for on-campus students. Still other research has looked at the development of Web-based systems that provide personalized suggestions for students rather than simply outlining general information. I examined the above types of studies, as well as research on general university websites, another case study from a non-academic website-design project at Duke, and work by Nielsen and colleagues examining university websites and how students and teenagers use the Web. My reading revealed many recommendations, suggested a variety of online tools, and discussed some common problems with university websites. I then consulted literature on usability testing to confirm its utility for this study and inform the design of the study.

Academic advising and other university websites

While literature specific to academic advising websites is limited, related research is wide-ranging. Various studies provided useful information in the forms of recommended website practices, developing online tools and website problems.

Recommended website practices. Many of the features researchers suggest for university websites—whether specific to academic advising, about the school in general, or related to a different department site—center on providing information that is both easy to find and easy to understand. The consequences of failing to do this can be dire, according to Margolin, Miller, and Rosenbaum (2013), who found that community college students misunderstood online information about such crucial issues as program costs, scheduling, and program duration that could affect their ability to participate in or afford college.

Several authors make specific suggestions to help with clarity. Common themes include avoiding jargon (Margolin et al., 2013; McKeever & Bonds, 2007) and limiting the amount of text and other content on a page (Cooper & Burns, 2007; Loranger and Nielsen, 2013; Margolin et al., 2013; Nielsen, 2010). Cooper and Burns (2007) also urge de-cluttering sites by featuring a single photo and limiting links and drop-down menus. Sherwin (2014) begins her rundown of design guidelines for university websites with the simple advice to identify the institution on every page. She later warns against trying too hard to appeal to young people with hip language, flashy imagery and sales pitches, arguing, “Using clever labels or flashy interactions that lack substance isn’t fun: it’s superficial and a waste of your users’ energy.”

However, websites should be not just simple but also useful. Wagner (2001) mentions clarity and concision but also stresses the need for comprehensive information. Based on her synthesis of previous literature, she makes suggestions for included content on academic advising sites: curriculum requirements, information for specific populations such as freshmen and commuters, and links to other university sites. Steele and Thurmond (2009) join Wagner in championing the use of a page of frequently asked questions and direct access to contacting advisers. Sherwin (2014) points out the importance of an easy-to-find list of majors and programs. Dahstrom and Bichsel (2014) suggest universities prioritize the development of mobile-friendly services (p. 21).

Boatright-Horowitz et al. (2009) feel more effort is needed than just including the right information on sites. In their research on depth of processing on academic advising sites, it was apparent that users scanned for the specific information they sought, ignoring other useful pieces. Therefore, they write, we may need to direct students to specific parts

of sites to make sure they see the information and take advantage of it. Loranger and Nielsen (2013) go a step further when discussing teenagers preparing to enter college—a key audience for university sites—noting that a lack of research skills often hinders teens’ ability to find information. Snider and Martin (2012) write that students claimed a university site was easy to use but then had trouble executing tasks. McKeever and Bonds (2007) also call for clear navigation, suggesting site organization be based on user feedback, and Snider and Martin (2012) suggest ordering information by importance and frequency of use. Sherwin (2014) points out the diversity of university site audiences and urges designers to be sure the site functions for each audience’s main task. Loranger and Nielsen (2013) preach the value of fast page loads to satisfy teenagers’ desire for instant gratification and of designing for the small screens that students often carry in their backpacks and pockets.

Web-based tools. In addition to providing necessary information, many researchers point toward the use of online tools to simplify the advising process. They have implemented sites that carry out some data-based tasks otherwise left in the hands of the student and academic adviser. Steele and Thurmond (2009) write that advising sites should move from an information-based approach to a portal-based presentation, creating more personalization and interactivity by incorporating online student-service tools, such as course catalogs, registration, and grade-point-average calculators into a single portal. They compare this automation to a global positioning system for a car. Like a driver with a GPS doesn’t have to worry about checking a map and can focus on the road and scenery, a student or adviser taking advantage of online tools can emphasize larger goals instead of checking off requirements. The “Online Advisor” tool developed by Feghali et

al. (2011), which takes into account previous courses and remaining requirements to come up with semester-to-semester and year-to-year schedules, was found to be effective and useful by students and advisers in solving the “last mile” problem of translating the available individual information to lists of possible classes.

Other online tools studied addressed specific issues. Grupe (2002) created a Web-based expert system (now widely available at <http://mymajors.com>) to suggest majors based on information provided by students. The tool proved to be internally consistent, but the study did not demonstrate sufficient external validity. Biletskiy et al. (2008) created an “e-Advisor” for automating the transfer of credit between institutions by pulling information from online course descriptions with the hope of later establishing an extensive, multi-institution database.

It is important to note that authors are careful to assert that such tools should serve not to replace the adviser but to work with her/him and/or ease her/his burden. As Wagner (2001) notes, “high tech” features should not replace the “high touch” of a human adviser (p. 4). Even Feghali et al. (2011), whose research directly compared their Web-based tool to the existing adviser-focused system, point out that the tool itself is intended to enhance—not replace—interaction between students and advisers.

Website problems. While many of the researchers’ recommendations are based on qualities of effective sites, others emerge from the ineffectiveness of particular sites. The issues Margolin et al. (2013) discovered on community college sites were less often about a lack of available information than the inability of students to find and correctly process that information. Study participants struggled with tasks aimed at demonstrating the finding and understanding of information related to such topics as scheduling and

program duration. The authors attribute more than half of the usability problems to a lack of understanding of information. They blame, among other factors, terminology that was confusing based on inconsistency or the use of jargon. Snider and Martin (2012) find similar issues with content clarity, such as inconsistent terminology and vague language around hyperlinks. Sherwin (2014) provides the example of a 17-year-old who assumed students could not major in math at a particular school because information about the math department was hidden behind a link to the College of Science. She also recalls missed opportunities in website content, citing as frequent offenses inauthentic stock photography, unrepresentative and marketing-heavy “About Us” pages, and important facts buried in long text blocks.

Margolin et al. (2013), Snider and Martin (2012) Ford (2011), McKeever and Bonds (2007), and Wagner (2001) all found problems with organization. Information was not always located where one might expect it to be, or it lacked a visual hierarchy. Ford studied the effectiveness of college websites for prospective students, and only 56 percent of the sites she examined had links to prospective-student pages. Ford also found school-to-school inconsistencies in what was listed in particular sections of sites, such as financial aid. Cooper and Burns (2007) documented an overabundance of information and options on the Fort Lewis College site they aimed at redesigning. Their initial site version had 201 links from the home page, compared to an average of just 66.5 on the cluster of sites preferred by their survey-takers. The site also had more than five times as many drop-down menus and links from drop-downs as other schools’ sites preferred by students. Such instances of information misplacement and information overload likely

caused many of the instances of college students (Nielsen, 2010) and teens (Loranger and Nielsen, 2014) failing to locate the information they were specifically seeking.

While the online tools presented by the researchers were generally in early iterations, some cautions are noted. The automated results were far from perfectly correct, as each set of authors notes some degree of error or inconsistency with the systems. This obviously raises the possibility of misinformation. Additionally, Steele and Thurmond (2009) wonder whether, even when students receive accurate information, they will understand and trust it.

Usability and usability testing

Once all the design strategies and potential pitfalls for an academic advising site have been considered, the website designer is charged with creating an online experience that students can use successfully. Relevant literature defines usability and explains its importance, describes numerous design factors affecting usability, considers factors in mobile usability, and provides guidelines for usability testing.

Definition. The term “usability” can refer to the ease of use of any number of things, including websites. Krug (2014) puts it perhaps most clearly, stating that something is usable when, “A person of average (or even below average) ability and experience can figure out how to use the thing to accomplish something without it being more trouble than it’s worth” (p. 9). Nielsen (2012a) begins even more simply, saying usability “assesses how easy user interfaces are to use.” He goes on to describe five components of usability: learnability, efficiency, memorability, errors, and satisfaction. This list overlaps significantly with one provided by Rubin and Chisnell (2008), which says usable products and services are useful, efficient, effective, satisfying, learnable, and

accessible (p. 4). Nielsen (2012a), however, puts usefulness in a different category, suggesting that something is useful only if offers both usability and utility. The Department of Health and Human Services (n.d.a) mentions half of those factors in its definition, “how effectively, efficiently and satisfactorily a user can interact with a user interface.”

Importance. All evidence points to usability as a key factor in a website’s success. “On the Web,” Nielsen (2012a) writes, “usability is a necessary condition for survival. If a website is difficult to use, people leave.” Lynch and Vahlberg (2008) find that ease of use differentiates sites as “favorites” among users. On the other end of the spectrum, Whitaker (2007) writes that disconnects between designers and users can stem from designers overestimating user knowledge or failing to anticipate user behaviors. Krug (2014) has observed similar disconnects. (p. 21). He notes that competition from other websites leaves users with a choice if unsatisfied with a particular site’s usability (p. 18) and that a usable site—a site that doesn’t require the user to think too much—feels effortless and makes everything about the site seem better (p. 19). Krug also describes what he calls a site’s “reservoir of goodwill” that is emptied as users encounters problems (p. 166-171). He echoes Nielsen’s caution about motivating users to leave a site but also mentions an even worse outcome: that users will be less likely to use the site in the future or may leave negative online reviews (p. 167).

The above discussion of problems on academic advising and other university websites also underscores the importance of usability. Those with poor usability can leave students uninformed or, worse, misinformed.

Principles and practices. Usability literature offers countless tips and guidelines, with authors often echoing one another's suggestions, but all the tactics generally support Nielsen's five components of usability: learnability, efficiency, memorability, errors and satisfaction.

Learnability. This factor assesses how easy a site is to use for first-time visitors (Nielsen, 2012a). This is reflected in Krug's (2014) refrain of, "Don't Make Me Think!" He elaborates, "I should be able to 'get it'—what it is and how to use it—without expending any effort thinking about it" (p. 11). Design practices to enhance learnability include clearly communicating what the site offers (Lynch, Vahlberg, Oh, & Yun, 2009) and designing for scanning instead of reading, by using visual hierarchies, accepted design conventions, formatting to make it obvious what's clickable, and only absolutely necessary text (Krug, 2014, p. 33-41).

Efficiency. Visitors should be able to quickly accomplish site tasks (Nielsen, 2012a) and do so with minimal effort (Lynch, et al., 2009). Design practices to enhance efficiency include limiting user choices and unrelated information (Lynch, et al., 2009), organizing with intuitive navigation and clear labeling (Krug 2014, p. 55-81; Silver 2012), minimizing the number of clicks needed to find information (Friedman 2007), and avoiding visually attractive or entertaining elements that offer no substantive benefit (Lynch, et al., 2009; Lazaris, 2010; Loranger & Nielsen, 2013; Sherwin, 2014).

Memorability. This refers to users' ability to revisit a site without having to relearn how to use it (Nielsen, 2012a). Krug (2014) preaches the importance of memorability for standalone applications, but says websites should be learnable enough the first time around that relearning shouldn't be an issue (p. 159). Design practices to

enhance memorability include effective branding (Lazaris, 2010) and designing to accommodate to young users' tendency to "page park" by opening many tabs—strategies like custom favicons and breadcrumb navigation (Meyer & Nielsen, 2015).

Errors. The frequency and severity of user errors, and the ability of users to overcome them, make up an important facet of usability (Nielsen, 2012a). Design practices to limit errors include avoiding duplicate page names (Fadeyev, 2009), limiting sentence and paragraph length (Loranger & Nielsen, 2013), providing easy ways to correct mistakes (Friedman, 2007), and generally following the practices under "learnability" and "efficiency" above.

Satisfaction. Nielsen (2012a) asks, "How pleasant is it to use the design?" Users must be able to accomplish what they came to do and enjoy it. Teens, for example, like sites that are entertaining, load quickly and give them control of social sharing options (Loranger & Nielsen, 2013). And students can get positive impressions from genuine, non-stock images (Sherwin, 2014). Friedman (2007) and Krug (2014, p. 24-25) note that designers can't rely on users to find optimal paths to their goals. Users instead "satisfice" by choosing the first reasonable option they come upon (Krug, 2014, p. 24-25).

Mobile usability. Krug (2014) argues that the principles of mobile usability are mostly the same as for larger screens, but there are some extra challenges for making sites usable for users on small screens (p. 144). Indeed, the guidelines for mobile usability laid out by Shitkova, Holler, Heide, Clever, and Becker (2015) largely mirror those suggested for desktop designs. Krug writes that not all mobile browsing is done while users are actually on the go, so sites should maintain full functionality and instead of cutting content, prioritize the most important or frequently used features (p. 148-149).

Writing just two years earlier, Clark (2012) takes Nielsen to task for the suggestion that the optimal solution for mobile is a separate, streamlined site, arguing instead for single sites catering to multiple devices. This debate has waned with the development of responsive design—which resizes and rearranges page elements based on screen size—in recent years, but Schade (2014) warns that responsive design is not a cure-all and particular attention must be paid to prioritization of content. For sites that are not yet responsive, Krug (2014) suggests allowing users to zoom and linking to the “full” site if using a mobile-specific site (p. 150).

Usability testing. Ruel (2007) states that, “usability testing is the difference between good design and great design.” While Rubin and Chisnell (2008) point out that “usability testing” can refer to any technique to evaluate the ease of use for a product or system (p. 21), the literature about usability testing for websites generally refers to the observation of people attempting to use a site to evaluate how easily the users can accomplish tasks. Nielsen (2012a) breaks down the process into three components: finding representative users, assigning the users representative tasks, and observing what the users do.

Representative users. Experts agree that recruiting users representative of a site’s target audience is a good practice, but they differ in their opinions about the importance of that practice. Rubin and Chisnell (2008) explicitly include the use of representative users in their working definition of usability testing in order to differentiate from other types of studies (p. 21). They suggest methods to research and visualize user profiles to seek out in the test sample (p. 115-119) and screen potential subjects (p. 126-149). Madrigal and McClain (2010) call recruiting “often the most critical element of usability

testing.” They note that some products have multiple target audiences and that testers should make sure to include representatives of each audience in their study.

Krug (2010) agrees that it is a good idea to recruit test subjects reflecting the traits of actual users, but he argues that users with particular domain knowledge do not always provide more insight than other users even though finding them can result in great time and financial cost (p. 40-41). He suggests testers “recruit loosely and grade on a curve,” evaluating as problems arise whether the issues are a result of a site issue or unrepresentative sample (p. 42).

Representative tasks. Krug (2010) agrees more strongly with other writers in the feeling that the tasks in a user test should represent actual tasks end users will perform, suggesting the development of scenarios to give context to particular tasks (p. 51-54). Rubin and Chisnell (2008) emphasize the importance of keeping scenarios realistic to help motivate users and of paying attention to the sequence of tasks (p. 183). Krug (2010) says to test the most critical tasks, the tasks the designer or tester suspects will cause users issues, and the tasks that other research—such as Web analytics—suggest could be causing problems (p. 52-53). Ruel (2007) suggests choosing at least 10 tasks but no more than 15.

Observation. A key factor that differentiates usability testing and other study types is the act of observing users. Nielsen (2012a) explains that usability testing emphasizes what users actually do, as opposed to what they say in focus groups. Krug (2010) points out that website analytics provide a great deal of information but often miss the “why” factor that usability testing can reveal (p. 19). Many writers caution test administrators against influencing the users they are observing. Nielsen (2012a) says to,

“Shut up and let the users do the talking,” noting that helping them or drawing attention to a particular part of the screen can contaminate test results. Madrigal and McClain (2010) write that such contaminating interference is especially tempting for site designers or other stakeholders who know how the site is supposed to work.

Testers must also determine how many users to test and how many times to test them. Expert consensus is that resources are better directed toward repeated tests than a larger sample in a particular round of testing. Nielsen’s 2000 finding that 80 percent of problems can be identified by testing five users—even though it takes 15 tests to find all problems—is still widely cited, and he continues to advocate this standard (2012b). Nielsen (2000) concludes that budget for testing 15 users is better spent on three tests of five users each. Advocating for early (p. 31-32) and routine (p. 23-24) testing, Krug (2010) writes that three users is enough for a particular round of testing, because of diminishing returns with each user (p. 43). Madrigal and McClain (2010) suggest testing with between six and eight users, as opposed to 10 to 12, because prominent issues that are uncovered with the first users will likely obscure other findings until those site issues have been corrected. They, too, suggest iterative testing.

Research Questions

1. What positive signs of usability are found on the Duke University Academic Advising Center website (<http://advising.duke.edu>)?
2. What minor problems hinder usability of the Duke University Academic Advising Center website (<http://advising.duke.edu>)?
3. What serious problems hinder usability of the Duke University Academic Advising Center website (<http://advising.duke.edu>)?

4. What critical problems hinder usability of the Duke University Academic Advising Center website (<http://advising.duke.edu>)?

Method

To answer these questions, I conducted a usability test by observing representative website users completing representative website tasks on desktop and mobile devices. I based my test on the testing instructions and sample script and provided by Krug (2010, p. 70-80, 147-153), with additional items suggested by Ruel (2007). The informed-consent form and pre-experiment and post-experiment questions were based on templates from Ruel (2007). I reported my findings based on the guidelines provided by the U.S. Department of Health and Human Services (n.d.b). I met with college students unfamiliar with Duke academics, the Academic Advising Center, and the advising website, asking each to answer questions and complete tasks requiring the user to find and understand key pieces of information on the website. I logged users' success in completing the tasks, as well as other observations I made and feedback offered by the users.

Research setting and equipment

My observational interviews were conducted one-on-one with each subject in a research lab on campus at the University of North Carolina-Chapel Hill, as I followed the advice of Ruel (2007) by testing each user in the same location. While not as authentic as a dorm room where students might normally use their own computers and devices, the setting proved comfortable enough for students to use the site as naturally as possible. The only way to study site use in a more natural environment would have been via

remote testing, which would provide authenticity only at the expense of observation and conversation with the user.

Half of test participants (five of 10) used the site on a laptop computer, and half used a mobile device. (Note: The term “desktop” in this study refers to devices with a traditionally sized screen, including testing done on a laptop-style computer.) Desktop testing was completed in Google’s Chrome browser on a provided Apple MacBook Pro laptop, equipped with an internal microphone and Apple QuickTime software for screen recording. Mobile testing was completed in the Apple Safari browser on students’ own Apple iPhone 6 or 6s devices. Using QuickTime allowed for easy, unobtrusive recording of each user’s screen movements and comments both on the laptop or a connected iPhone.

Sampling

The Academic Advising Center website is intended for Duke University undergraduates, and Duke students would likely be available to interview. However, Duke students may have already used the site and possess varying levels of knowledge about academic offerings and procedures at Duke. This factor was controlled by using subjects with a blank slate, college students from a different university. Any lack of familiarity with Duke was mitigated with a brief introduction to the interview and assistance throughout testing when something came up that a Duke student would have known. For example, users were informed that Duke undergraduates apply to the university through one of two schools, the Trinity College of Arts & Sciences or the Pratt School of Engineering. Very little other information was needed, because the site should

be usable by incoming first-year Duke students and should therefore not require much insider information.

The best university from which to recruit study participants may have been a far-flung school like Stanford University or the University of Pennsylvania, institutions that are similar to Duke in undergraduate population size and national ranking and therefore might be likely to provide subjects similar to Duke students. But with a plan to conduct in-person research and without a travel budget, practicality necessitated finding local subjects. Conducting interviews at nearby UNC-Chapel Hill allowed me to save a great deal of time and money.

I recruited undergraduate participants through the UNC School of Media and Journalism's research-participant pool. These students receive academic credit for participating in studies but are not required to participate and can instead complete assignments critiquing existing research work. I tested five desktop and five mobile users, in line with Nielsen's findings that five users can reveal 80 percent of a site's problems and suggestion of three rounds of testing with five users each (2000, 2012b). I carried out just the first of these three suggested rounds, because I do not have the ability to make changes to the website before doing further testing.

Availability of resources

The resources needed for this project were readily available. My only costs for conducting this testing were 10 hours of testing time and a few dollars to provide participants with bottled water. I had adequate vacation time and savings to cover these costs. I used UNC-Chapel Hill facilities available to me as a student, as well as my own personal laptop and users' personal mobile phones to conduct the tests.

Data collection

I asked a few short questions of each test participant to get the subject comfortable talking and provide context for her/his answers. I also documented my observations of the subject during a time exploring the home page on her/his own at the start of the test, logged her/his success and made other observations during task completion, and asked quantifiable questions about users' opinions of the site. Screen and audio captures of the sessions allowed me to go back to check things I missed in my notes. (For detailed scripts, questionnaires and tasks see Appendices C through G.)

Data analysis

Following the advice of Ruel (2007), I averaged the quantifiable data to form aggregate user opinions and also considered users' free-exploration behavior in addition to looking at users' aggregate abilities to complete the assigned tasks. I averaged the overall data and also data from the desktop and mobile tests separately. This allowed comparison across different tasks and post-experiment statements and across desktop and mobile user groups. I was able to pinpoint both overall trouble spots and problems that were more pronounced with one user group or the other.

Each subject's individual experience completing the task provided information to aid me in classifying usability problems as minor, serious, or critical (U.S. Department of Health and Human Services n.t.b). I categorized problems based on the following characteristics:

- Minor problems were those that kept users from completing tasks as quickly or easily as they otherwise might but only briefly delayed progress.

- Serious problems were those that significantly slowed users' progress toward task completion or led users to less-than-ideal, but still acceptable, answers.
- Critical problems were those that prevented users from completing tasks at all or led users to incorrect answers.

The areas of trouble, users' quantitative ratings of site features, and suggestions shared by users as they move through the tasks informed my recommendations for improving site usability.

Limitations

This study was successful in identifying usability strengths and weaknesses of the website being tested. There were a few minor limitations that do not impact the validity of the study but might be taken into account when considering future rounds of testing or applying these findings to academic advising websites for other institutions.

Testing limitations

It goes without saying that a 12-task usability test is not adequate for measuring the effectiveness of the delivery of all the information on such a dense site. The more testing that is done on the site, the more specific scenarios can be considered. One use scenario that is likely particularly prevalent but not explored here is search. Many students would surely use an external search engine like Google or the site's internal search function to locate the information they need. Testing those functions exceeded the scope of this study but would be worthwhile.

All desktop users were tested on the same device and browser, and all mobile users were tested on one of two generations of the same device model and on the same browser. Testing on Windows computers, Android mobile devices, tablets, or other

hardware/software combinations could provide additional usability insights. While most, if not all, participants in this study (even those that completed the desktop testing) carried large-screen phones (usually the iPhone 6 or 6s), some students undoubtedly use mobile devices with smaller screens, such as older-generation iPhones. It would be noteworthy, then, to test the site using mobile devices with smaller screens.

As noted above, while experts recommend iterative website testing, this study only involved one round of tests. I will share the results with the Duke advising staff. They will decide whether to implement the suggested changes and pursue further testing.

Sampling limitations

Because testing slots were open to all students enrolled in research-pool courses, the sample was anomalous in four ways: Nine of 10 study participants were women (One other man signed up but did not attend his scheduled test session.), eight were white, all participants were majoring in or planned to major in media and journalism, and one of the participants was an atypical student, a 35-year-old UNC-Chapel Hill staff member who was not a full-time student but was interested in earning a degree. While testing more men could potentially reveal more usability problems, the goal of this study was not to generalize behavioral observations but to observe individual representative users. The sample I used provided more than enough usability findings for one round of testing.

The preponderance of participants majoring in media and journalism stemmed from recruiting students from the UNC School of Media and Journalism's research pool. The participants came from four different major tracks within media and journalism, three were pursuing a second major, and several mentioned minors. As with gender diversity, greater academic diversity could have potentially revealed more insights, but

did not prevent the study from yielding significant usability findings. The same is true for racial diversity. A more racially diverse sample, particularly one mimicking the racial demographics at Duke University could provide additional insights and should be considered if the Duke staff chooses to pursue further rounds of testing.

Testing with a nontraditional student, particularly one with degree-seeking aspirations, provided a look at site use by a representative user who may not have been considered when the site was designed.

Additionally, while UNC-Chapel Hill students sufficed as reasonable substitutes for Duke students, the most representative sample would be comprised of recently accepted Duke students, those with a vested interest in finding the information, completing the tasks, and using and improving the advising website. A study of such students would likely require remote testing at a particular time of year, immediately after they receive their acceptance letters and before they have had much time to explore the advising website on their own.

Generalizability limitations

While other institutions are likely to share many of Duke's goals in the creation of an academic advising website, every university has its own curriculum and its own student body. It is possible that what works for Duke students—or, in this case, an approximation of Duke students—might not work at another institution. Staff at other universities are encouraged to consider the findings in this research and look for similar problems on their websites, but this study could be more useful in providing a model for how to do their own testing of those sites and confirming the findings of previous research performed on other types of sites.

Findings

Summary

Study participants experienced varying levels of success using the Duke University Academic Advising Center website. In a few situations (e.g. contacting a primary academic advisor), users were able to find the information they needed with little trouble. In others (e.g. identifying first-year requirements), missteps were common but easily overcome. Still other times, students struggled to find specific information or identify the appropriate mentor to contact.

Observations of the users' behavior, combined with their feedback, indicate that the overall structure of the site is solid and conveys strong senses of professionalism, care and official university affiliation. Users praised the site's top-level navigation, organized around the four pillars of "Your Academic Home," "Your Advising Network," "Your Duke Path," and "Your Online Resources." They found the headings both useful in directing them through the site and affirming in the promise of student-specific solutions.

Still, problems persist. Users sometimes struggled to find bits of specific information and differentiate among various mentors. Some problems prevented users from completing tasks at all, and the role of the directors of academic engagement proved particularly confusing. Because of the strength of the overall site organization, these problems mostly appear to be relatively easy to correct. The greatest exception is the lack of a mobile-friendly design. While mobile users did not often complain about browsing the site on a small screen, observation of their behavior revealed problems related to finding and understanding information.

Answers to research questions

The attached usability report and presentation (Appendices A and B) review site problems and recommended solutions in detail, but an overview answer to each research question is provided below.

Research question 1. What positive signs of usability are found on the Duke University Academic Advising Center website? Users responded favorably to the site's design, both in aesthetics and top-level navigation. They liked the ease of navigating the "Your Duke Path" section in particular. They also fared well on executing certain site tasks. Users had little trouble determining how to contact a primary academic advisor or the appropriate departmental contact for a specific major. While there was evidence of a lack of mobile-friendly design hindering mobile users, these users were more likely to see, express appreciation for, and use the rest of the home-page design beyond the top navigation and photo.

Research question 2. What minor problems hinder usability of the Duke University Academic Advising Center website? A few problems mildly impeded study participants. These hindrances included a confusing link to the university home page, an unnecessary distinction between "choosing a major" and "joining a major," and the lack of a prominent link to the AAC Peer Advisors page from the corresponding home-page graphic.

Research question 3. What serious problems hinder usability of the Duke University Academic Advising Center website? Several problems were severe enough to cause great difficulty in task completion or lead users to a less-than-ideal answer to a task question. Most of these problems centered around a lack of clarity in the site's subnavigation and a lack of prominence in the display of key pieces of specific

information. Mobile users encountered serious difficulty when navigating direct links to charts on the Trinity College website. Despite the severe effects of these problems, they can mostly be corrected without great cost by making small changes to the site's subnavigation and reviewing textual content for opportunities to provide greater clarity.

Research question 4. What critical problems hinder usability of the Duke University Academic Advising Center website? Perhaps the least encouraging finding of this study was the somewhat great number of users who failed to locate the information they sought, or who assumed incorrect information in lieu of finding the right solution. Much of this trouble centered on users' lack of understanding of the roles of different advisers. While the most profound misunderstanding was of the role of the directors of academic engagement, a lack of differentiation among other mentors also prevented task completion. Testing also revealed critical problems in conveying the utility of the "Your Online Resources" page and explaining with clarity the answers to placement questions. While corrections to many of these problems could be relatively easy, mobile users experienced enough critical problems to warrant the implementation of a responsive design to deliver an acceptable user experience.

Discussion

The implications of this study are clear for the staff at the Duke University Academic Advising Center. Those charged with maintaining and improving the site can access the attached usability report, examine the problems identified, and consider the solutions proposed. These recommendations have been organized to address the critical problems first, so the beginning of the list is a good place to start. But making site changes requires resources, so staff must choose which problems to address first, or at all,

based not just on impact but cost. Many of the recommendations to address minor problems could be corrected quickly and easily, providing some usability improvements while gathering resources or establishing a plan for tackling bigger problems.

For other advising offices, this study also offers lessons, though less personal ones. Most of these points are not new, having been made regarding websites in general, websites targeting young people, and university websites specifically. Still, the results here confirm that these issues should be considered when designing—or redesigning—a university’s advising website.

Usability testing

The most obvious and crucial lesson is the importance of usability testing itself. It is clear that the general organization of the Duke advising site is effective, and even endearing, to users, yet many problems still emerged when users attempted specific tasks. Users used different approaches than the site designers anticipated when seeking information. The users sometimes even struggled to identify their own problems. Testing clearly demonstrated the challenges of browsing the site on a mobile device, but users themselves did not attribute any difficulties to the small screen itself. It is important to both design for mobile screens and to test on them. In this case, the testing proved the need for the design.

Presentation

Looking good matters, when it accomplishes something. Users responded favorably to the look and feel of the Duke advising website and felt it reflected professionalism, official Duke affiliation, and even care for the target audience. Mobile users especially liked the site’s aesthetics, even while exhibiting poorer performance than

desktop users. The presentation of information is also important. The word “Your” before the top-level navigation labels on the site conveyed a sense of personal importance, and the use of unfamiliar terminology (e.g. “joining a major”) proved troublesome. Users predictably struggled with long blocks of text and, in fact, with short blocks of text. They scanned instead of reading, and designers should cater to this tendency with headings and lists.

Navigation

Looking good only matters so much. Students need to be able to find information. While the Duke advising website is mostly organized based on students’ needs rather than university structure, testing revealed some instances where this was not the case. Users were confused by the lack of specific pages for juniors and seniors in the “Your Duke Path” section.

Clarity is key. Users found the “Your Online Resources” page to be very useful but were slow to visit it, because it was unclear what sort of page they would find there. It is also important to give students multiple ways to find information, as they come to a site with varying levels of knowledge and different browsing styles. In this study, when the navigation failed to properly direct users, they often found their way to the right information through links on other pages.

Conclusion

This study has revealed that the Duke University Academic Advising Center website is well-built for a highly usable experience, thanks in large part to a top-level navigation that is at once instructive, navigable, and engaging. However, the site suffers from a number of problems of varying severity that require attention in order to serve all

users. Many of the recommended changes—even those addressing critical problems—are relatively simple and can be made without great expenditure of resources. But while the site provides a pleasing visual experience on mobile devices, the lack of a mobile-friendly responsive design causes significant difficulty for mobile users and warrants a thorough retooling for responsiveness.

The results of this testing are instructive for other institutions. They demonstrate the importance of presenting advising information in a way that is visually appealing, logically organized, and easily understandable for students. Above all, the success of the study in identifying site strengths and weaknesses shows the importance of universities performing usability testing on their own advising websites and provides a useful template for setting up such a project.

References

- Biletskiy, Y., Brown, J. A., & Ranganathan, G. (2009). Information extraction from syllabi for academic e-advising. *Expert Systems with Applications*, 36(3), 4508-4516. doi:10.1016/j.eswa.2008.05.011
- Boatright-Horowitz, S., Langley, M., & Gunnip, M. (2009). Depth-of-processing effects as college students use academic advising web sites. *CyberPsychology & Behavior*, 12(3), 331-335. doi:10.1089/cpb.2008.0207
- Clark, J. (2012, April 12). Josh Clark: Why Jakob Nielsen is wrong on mobile. Retrieved from <http://www.creativebloq.com/josh-clark-why-jakob-nielsen-wrong-mobile-4124168>
- Cooper, C., & Burns, A. (2007). Kohonen self-organizing feature maps as a means to benchmark college and university websites. *Journal of Science Education & Technology*, 16(3), 203-211. doi:10.1007/s10956-007-9053-7
- Cotten, S. R., & Jelenewicz, S. M. (2006). A disappearing digital divide among college students? Peeling away the layers of the digital divide. *Social Science Computer Review*, 24(4), 497-506. doi:10.1177/0894439306286852
- Dahlstrom, E., & Bichsel, J. (2014). *ECAR study of undergraduate students and information technology*. Retrieved from <http://www.csus.edu/irt/cio/strategicplanning/Documents/Undergrad-Students-and-IT-2014-Full-Report.pdf>
- Fadeyev, D. (2009, February 18). 9 common usability mistakes In Web design. Retrieved from <http://www.smashingmagazine.com/2009/02/9-common-usability-blunders/>

- Feghali, T., Zbib, I., & Hallal, S. (2011). A web-based decision support tool for academic advising. *Journal of Educational Technology & Society*, 14(1), 82-94. Retrieved from https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=63157424&site=ehost-live&scope=site
- Ford, W. G. (2011). Evaluating the effectiveness of college web sites for prospective students. *Journal of College Admission*, (212), 26-31. Retrieved from https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=62796439&site=ehost-live&scope=site
- Friedman, V. (2007, October 8). 30 usability issues to be aware of. Retrieved from <http://www.smashingmagazine.com/2007/10/30-usability-issues-to-be-aware-of/>
- Grupe, F. H. (2002). Student advisement: Applying a web-based expert system to the selection of an academic major. *College Student Journal*, 36(4), 573. Retrieved from https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=9066965&site=ehost-live&scope=site
- Guidry, A. O. (2012). Working smarter, not harder: Using academic and advising cohorts to achieve positive change in one small program area. *The Mentor: An Academic Advising Journal*. Retrieved from <http://dus.psu.edu/mentor/2012/06/working-smarter-not-harder/>
- Jones, S., Johnson-Yale, C., Millermaier, S., & Pérez, F. (2009). U.S. college students' Internet use: Race, gender and digital divides. *Journal Of Computer-Mediated Communication*, 14(2), 244-264. doi:10.1111/j.1083-6101.2009.01439.x

Krug, S. (2010). *Rocket surgery made easy the do-it-yourself guide to finding and fixing usability problems*. Berkeley, CA: New Riders.

Krug, S. (2014). *Don't make me think, revisited: a common sense approach to Web usability*. Berkeley, CA: New Riders.

Lazaris, L. (2010, August 22). A design is only as deep as it is usable. Retrieved from <http://www.smashingmagazine.com/2010/08/a-design-is-only-as-deep-as-it-is-usable/>

Light, R. J. (2001). The power of good advice for students. *Chronicle Of Higher Education*, 47(25), B11.

Loranger, H., & Nielsen, J. (2013, February 4). Teenage usability: designing teen-targeted websites. Retrieved from <http://www.nngroup.com/articles/usability-of-websites-for-teenagers/>

Lynch, S., & Vahlberg, V. (2008, September). What it takes to be a Web favorite. Retrieved from <http://mediamanagementcenter.sectorlink.org/research/webfavorite.pdf>

Lynch, S., Vahlberg V., Oh, S., & Yun, W. (2009). How to become “easy to use” online. Retrieved from https://www.newsu.org/course_files/ball_webUX-11/analyze/Lynch_EasyToUse.pdf

Madrigal, D., & McClain, B. (2010, March 8). Do's and don'ts of usability testing. Retrieved from <http://www.uxmatters.com/mt/archives/2010/03/dos-and-donts-of-usability-testing.php>

- Margolin, J., Miller, S. R., & Rosenbaum, J. E. (2013). The community college website as virtual advisor: A usability study. *Community College Review*, 41(1), 44-62.
doi:10.1177/0091552112471844
- McKeever, J., & Bonds, D. (2007). Comment sense. *Marketing Health Services*, 27(4), 18-21. Retrieved from
https://auth.lib.unc.edu/ezproxy_auth.php?url=http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=28090223&site=ehost-live&scope=site
- Meyer, K., & Nielsen, J. (2015, November 1). Page parking: millennials' multi-tab mania. Retrieved from <http://www.nngroup.com/articles/multi-tab-page-parking/>
- Nielsen, J. (2000, March 3). Why you only need to test with 5 users. Retrieved from <http://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/>
- Nielsen, J. (2010, December 15). College students on the Web. Retrieved from <http://www.nngroup.com/articles/college-students-on-the-web/>
- Nielsen, J. (2012a, January 4). Usability 101: introduction to usability. Retrieved from <http://www.nngroup.com/articles/usability-101-introduction-to-usability/>
- Nielsen, J. (2012b, June 4). How many test users in a usability study? Retrieved January 24 from <http://www.nngroup.com/articles/how-many-test-users/>
- Rubin, J., & Chisnell, D. (2008). *Handbook of usability testing how to plan, design, and conduct effective tests* (2nd ed.). Indianapolis, IN: Wiley Pub.
- Ruel, L. (2007, August 1). OJR's 'five guide' to do-it-yourself website usability testing. Retrieved from <http://www.ojr.org/ojrs-five-guide-to-do-it-yourself-website-usability-testing/>

Schade, A. (2014, May 4). Responsive Web design (RWD) and user experience.

Retrieved from <http://www.nngroup.com/articles/responsive-web-design-definition/>

Sherwin, K. (2014, January 19). University websites: top 10 design guidelines. Retrieved

from <http://www.nngroup.com/articles/university-sites/>

Shitkova, M., Holler, J., Heide, T., Clever, N., & Becker, J. (2015). Towards usability guidelines for mobile websites and applications. *Wirtschaftsinformatik*

Proceedings 2015. Paper 107. Retrieved from <http://aisel.aisnet.org/wi2015/107>

Silfver, P. (2012, March 20). The Elements Of Navigation. Retrieved from

<http://www.smashingmagazine.com/2012/03/the-elements-of-navigation/>

Snider, J., & Martin, F. (2012). Evaluating web usability. *Performance Improvement*,

51(3), 30-40. doi:10.1002/pfi.21252

Soria, K. M. (2012). Advising satisfaction: Implications for first-year students' sense of belonging and student retention. *The Mentor: An Academic Advising Journal*.

Retrieved from <http://dus.psu.edu/mentor/2012/10/advising-satisfaction/>

Steele, G. E., & Thurmond, K. C. (2009). Academic advising in a virtual university. *New*

Directions for Higher Education, (146), 85-95. doi:10.1002/he.349

U.S. Department of Health and Human Services. (n.d.a). Glossary. Retrieved from

<http://www.usability.gov/what-and-why/glossary/u/index.html>

U.S. Department of Health and Human Services. (n.d.b). Reporting usability test results.

Retrieved from <http://www.usability.gov/how-to-and-tools/methods/reporting-usability-test-results.html>

Wagner, L. (2001). Virtual advising: Delivering student services. *Online Journal of Distance Learning Administration*, 4(3). Retrieved from

<http://www.westga.edu/~distance/ojdl/fall43/wagner43.html>

Whitaker, B. (2007, July 7). Technology's untanglers: they make wt really work.

Retrieved from

<http://www.nytimes.com/2007/07/08/business/yourmoney/08starts.html>

APPENDIX A: Usability Report

Usability report: advising.duke.edu

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April 15, 2016

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Introduction

Academic advising websites

Undergraduate education is becoming more complex every year. Our collective knowledge is always expanding, and in a world that is increasingly connected through technology, documenting and sharing that knowledge is becoming easier and easier. For colleges and universities, this means new fields of study, new institution-specific programs, and more interdisciplinary collaboration. It is becoming increasingly difficult for students to keep abreast of all their academic and co-curricular options and to determine what courses, degree programs, and other academic opportunities are right for them overall and at a given time.

Fortunately for students, help navigating this ever-changing information is available in the form of academic advisers, who help guide students through their academic choices. Universities' academic advising websites can play a key role in aiding this process, providing students with information on requirements, placement, courses, majors, and resources via a favored information channel for students, the World Wide Web. Providing this information allows students and advisers to spend less time discussing logistical information and more time in substantive discussion of academic interests and goals. It is crucial that these advising websites capitalize on their potential. Their effectiveness should be evaluated, and changes should be implemented in order to maximize utility and contribute to the efficiency and substance of adviser-student interactions.

Assessing usability

The purpose of this study was to employ usability testing to assess how easily students find and understand essential academic information on the Duke University Academic Advising Center website. The study will contribute to the improvement of the website and provide much-needed information for other colleges and universities attempting to convey similar information on their sites.

In order to design this study, I examined the previous literature on college academic advising websites as well as much of the literature on similar websites and on usability testing. I sought insight on practices and pitfalls affecting website usability and on the practice of usability testing itself. What I read in the literature impacted my study design and informed my recommendations for how to improve the Duke advising site.

Research questions

I set out to answer the below questions regarding usability and recommend solutions where problems were located.

- » Research question 1. What positive signs of usability are found on the Duke University Academic Advising Center website (<http://advising.duke.edu>)?
- » Research question 2. What minor problems hinder usability of the Duke University Academic Advising Center website (<http://advising.duke.edu>)?
- » Research question 3. What serious problems hinder usability of the Duke University Academic Advising Center website (<http://advising.duke.edu>)?
- » Research question 4. What critical problems hinder usability of the Duke University Academic Advising Center website (<http://advising.duke.edu>)?

Method

To answer my research questions about positive findings and various levels of problems related to website usability, I conducted a usability test by observing representative website users completing representative website tasks on desktop and mobile devices. I met with college students unfamiliar with Duke academics, the Academic Advising Center, and the advising website, asking each to answer questions and complete tasks requiring the user to find and understand key pieces of information on the website. I logged users' success in completing the tasks, as well as other observations I made and feedback offered by the users.

Setting and equipment

My observational interviews were conducted one-on-one with each subject in a research lab on campus at the University of North Carolina-Chapel Hill. Half of test participants (five of 10) used the site on a laptop computer, and half used a mobile device. Desktop testing was completed in Google's Chrome browser on a provided Apple MacBook Pro laptop, equipped with an internal microphone and Apple QuickTime software for screen recording. Mobile testing was completed in the Apple Safari browser on participants' own Apple iPhone 6 or 6s devices. Using QuickTime allowed for easy, unobtrusive recording of each user's screen movements and comments.

Sampling

The Academic Advising Center website is intended for Duke University undergraduates, and Duke students would likely be available to interview. However, Duke students may have already used the site and possess varying levels of knowledge about academic offerings and procedures at Duke. This factor was controlled by using subjects with a blank slate, college students from a different university, the nearby University of North Carolina-Chapel Hill.

Data collection

I asked a few short questions of each site user to get the subject comfortable talking and provide context for her/his answers. I also documented my observations of the subject during a time exploring the home page on her/his own at the start of the test, logged her/his success and made other observations during task completion, and asked quantifiable questions about users' opinions of the site. Screen and audio captures of the sessions allowed me to go back to check anything I might have missed.

I observed users carrying out the following tasks and recorded their responses when the task was to research the answer to a particular question:

- » Task 1. Get as far as you can* in the process of opening an email to your adviser. Declare aloud when you have completed the task.
 - **Actually opening an email requires logging in with Duke credentials.*
- » Task 2. Answer this question: What is the deadline for most sophomores to declare a major in 2015-16?
- » Task 3. Go to the page to make an appointment to explore your options for study abroad and other opportunities. Declare aloud when you have completed this task.
- » Task 4. Answer this question: What two course requirements must all students complete during their first year?
- » Task 5. Answer this question: What is the name of a specific person whom you can contact if you are considering majoring in Asian and Middle Eastern studies and want more informa-

tion?

- » Task 6. Go to the page listing all graduation requirements. Declare aloud when you have completed the task.
- » Task 7. Answer this question: Whom should you contact if you are experiencing a family emergency or other extenuating circumstance that impacts your ability to complete your course work? I'm looking for a position, not a specific name.
- » Task 8. Answer this question: You are an incoming first-year considering taking an economics course first semester. Based on the following Advanced Placement test scores, for which course should you register?
 - AP Microeconomics: 5
 - AP Macroeconomics: 4
 - AP Calculus AB: 3
 - AP Calculus BC: did not take
- » Task 9. You are an engineering student but have decided you would like to major in English instead. Get as far as you can* in the process of transferring to the college of arts and sciences.
 - **Actually applying requires logging in with Duke credentials.*
- » Task 10. Answer this question: Does Duke offer a major in education?
- » Task 11. Answer this question: You are thinking about majoring in biology. What is the name of a specific fellow student who could talk to you about his experience studying that subject at Duke?
- » Task 12. Answer this question: When and where can a student visit the Academic Advising Center?

Data analysis

I averaged the quantifiable data to form aggregate user opinions and also considered users' free-exploration behavior, in addition to looking at users' aggregate abilities to complete the assigned tasks. I averaged the overall data and also that from the desktop and mobile tests separately. This allowed comparison among different tasks and post-experiment statements and between desktop and mobile user groups. I was able to pinpoint both overall trouble spots and problems that were more pronounced with one user group or the other.

Each subject's individual experience completing the task provided information to aid me in classifying usability problems as minor, serious, or critical. I categorized problems based on the following characteristics:

- » Minor problems were those that kept users from completing tasks as quickly or easily as they otherwise might but only briefly delayed progress.
- » Serious problems were those that significantly slowed users' progress toward task completion or led users to less-than-ideal, but still acceptable, answers.
- » Critical problems were those that prevented users from completing tasks at all or led users to incorrect answers.

Results

Participant demographics

Mean age: 21.9

Minimum age: 19

Maximum age: 35 (part-time student)

Mean age among full-time undergraduates: 20.4

Class year: 4 sophomore, 3 junior, 2 senior

Sex: 9 female, 1 male

Race: 8 white, 1 Hispanic, 1 black/African-American and Hispanic

Major (including intended majors and double majors):

- » 10 media and journalism
 - 4 public relations, 1 broadcast, 1 business journalism, 1 strategic communication
- » 1 communication
- » 1 exercise and sport science
- » 1 political science

Most-used device: 4 desktop/laptop, 4 equal use of desktop/laptop and mobile, 2 mobile

Task success

User	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	Task 8	Task 9	Task 10	Task 11	Task 12
D1	3	2	2	3	3	3	1	2	3	2	2	3
D2	2	2	1	3	2	2	3	1	2	2	3	2
D3	3	2	1	2	0	1	1	2	2	0	0	2
D4	2	1	1	3	3	3	1	0	0	0	3	2
D5	0	2	1	0	3	3	0	0	3	0	3	3
M1	3	2	0	3	3	3	1	0	3	2	0	3
M2	3	2	0	1	3	1	1	3	0	1	0	1
M3	2	2	0	0	3	2	3	0	1	3	2	2
M4	3	2	0	3	0	3	1	3	3	2	2	3
M5	2	0	1	3	3	3	1	0	2	1	3	0
Overall	2.3	1.7	0.7	2.1	2.3	2.4	1.3	1.1	1.9	1.3	1.8	2.1
Desktop	2	1.8	1.2	2.2	2.2	2.4	1.2	1.0	2.0	0.8	2.2	2.4
Mobile	2.6	1.6	0.2	2	2.4	2.4	1.4	1.2	1.8	1.8	1.4	1.8

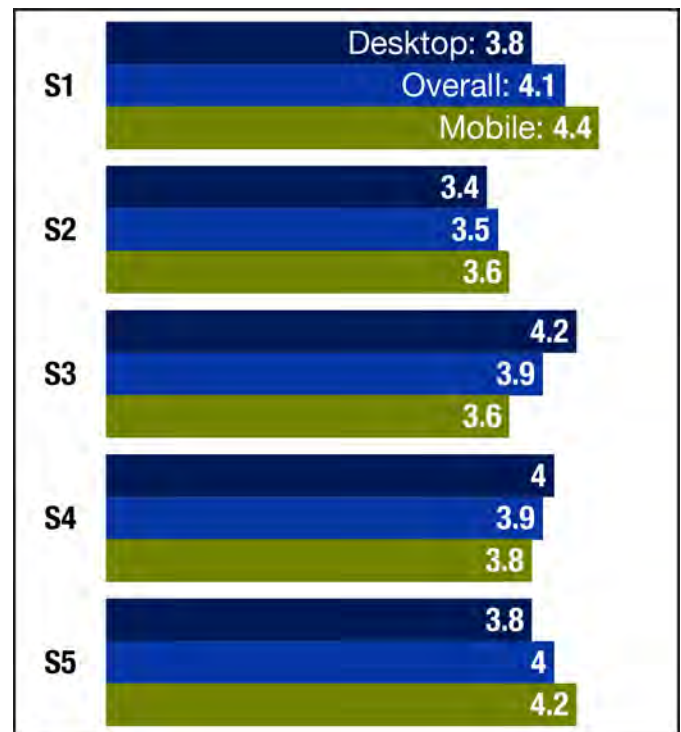
- » Tasks completed with no problems displayed in **dark blue**
- » Tasks completed with minor problems displayed in **royal blue**
- » Tasks completed with serious problems displayed in **dark green**
- » Incorrect answers that would be corrected by a referral, indicating serious problems, displayed in **light green**
- » Incomplete tasks, indicating critical problems, displayed in **orange**
- » Incorrect answers, indicating critical problems, displayed in **red**

Post-experiment responses

Users rated their agreement with each of the following statements on a scale from 1 (strongly disagree) to 5 (strongly agree).

- » Statement 1. The site’s design and photos are attractive.
- » Statement 2. Information on the site is easy to find.
- » Statement 3. Information on the site is easy to understand.
- » Statement 4. The site’s navigation is easy to use.
- » Statement 5. The site is designed with me in mind.

User	S1	S2	S3	S4	S5
D1	4	4	4	5	4
D2	4	3	4	4	3
D3	4	3	5	4	4
D4	4	3	4	3	4
D5	3	4	4	4	4
M1	5	4	3	4	5
M2	4	4	3	4	4
M3	4	3	3	2	5
M4	5	4	4	5	5
M5	4	3	5	4	4
Desktop	3.8	3.4	4.2	4	3.8
Overall	4.1	3.5	3.9	3.9	4
Mobile	4.4	3.6	3.6	3.8	4.2



Summary of findings

Study participants experienced varying levels of success using the Duke University Academic Advising Center website. In a few situations (e.g. contacting a primary academic adviser), users were able to find the information they needed with little trouble. In others (e.g. identifying first-year requirements), missteps were common but easily overcome. Still other times, students struggled to find specific information or identify the appropriate mentor to contact.

Observations of the users' behavior, combined with their feedback indicate that the overall structure of the site is solid and conveys strong senses of professionalism, care and official university affiliation. Users praised the site's top-level navigation, organized around the four pillars of "Your Academic Home," "Your Advising Network," "Your Duke Path," and "Your On-line Resources." They found the headings both useful in directing them through the site and affirming in the promise of student-specific solutions.

Still, problems persist. Users sometimes struggled to find bits of specific information and differentiate among various mentors. Some problems prevented users from completing tasks at all, and the role of the directors of academic engagement proved particularly confusing. Because of the strength of the overall site organization, these problems mostly appear to be relatively easy to correct. The greatest exception is the lack of a mobile-friendly design. While mobile users did not often complain about browsing the site on a small screen, observation of their behavior revealed problems related to finding and understanding information.



Users liked the look and feel of the website.

The full width of the site is displayed on a narrow mobile screen.

Positive findings

Presentation

- » PP1. An average post-experiment agreement rating of 4 out of 5 for the statement, “The site is designed with me in mind,” indicates an overall favorable impression of the site as a representative user.
- » PP2. Users easily identified the site’s affiliation with Duke University and academic advising.
 - “You know it’s Duke.”
- » PP3. Users responded positively to colors, images, and graphics, as their highest overall agreement rating was with the statement, “The site’s design and photos are attractive.”
 - “Inviting”
 - “Professional”
 - “Makes it seem like they really care”
 - Mobile users especially liked the look of the site, with an average response of 4.4 in agreement with the statement about the site’s design and photos.

Navigation

- » PN1. Users indicated a strong affinity for the top-level navigation.
 - Seven of 10 users cited the four top-level pillars of “Your Academic Home,” “Your Advising Network,” “Your Duke Path,” and “Your Online Resources” as a favorite aspect of the site.
 - The use of “Your” headers gives a personalized feel.
- » PN2. Easy-to-use “Your Duke Path” section
 - Users found it easy to hunt for information based on the year they would need it.

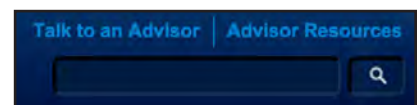


Users praised the top-level navigation, particularly the “Your Duke Path” section. » **PN1, PN2**

- » PN3. Individual users praised the “wheel” graphic, “Your Advising Network” drop-down menu, FAQ list, and link to the directory of directors of undergraduate studies.

Task-specific

- » PT1. Task 1: Nine users figured out how to contact an academic adviser without significant problems.
- » PT2. Task 2: While all clicked “Choosing a major” first, rather than “Joining a major,” eight users were able to identify the major-declaration deadline with only minor problems.
- » PT3. Task 5: Users were largely successful identifying the appropriate contact with whom to discuss interest in a specific major.
 - Seven did this with no problems, and one experienced only minor difficulty.
- » PT4. Task 6: Despite most failing to find the quickest link, all users located the page displaying all graduation requirements. Six did so with no problems.

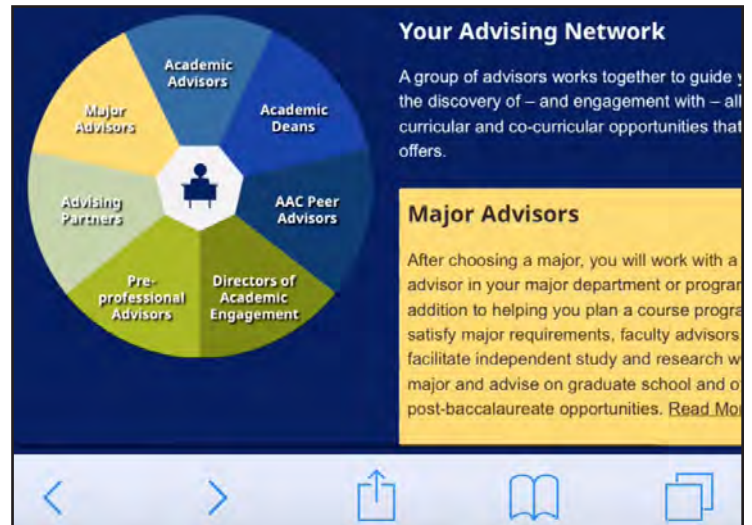


Four users went straight to the “Talk to an Advisor” button to complete Task 1. » **PT1**

- » PT5. Task 7: While users struggled to determine exactly whom to contact about an extenuating circumstance impacting their ability to complete coursework, almost all were able to locate *someone* who could help in a time of crisis and refer students to an academic dean.
- » PT6. Task 12: Four users specifically noted that they expected to see office contact info on the home page, but all users did eventually locate the Academic Advising Center's hours and location.

Mobile-specific

- » PM1. Mobile users were more likely to explore the full home page and use the “wheel” graphic. They could see the graphic upon loading, without scrolling.
 - This likely accounted for mobile users' particular favor for the site's aesthetics.
 - This also likely played a part in mobile users' success in completing Task 1 (contacting the primary academic advisor), as two mobile users—unlike their desktop counterparts—reached the appropriate destination via the “wheel” graphic displaying various mentors. Mobile users' success rate on this task was higher than for any mobile or desktop segment on any other task.



Mobile users took better advantage of the home page's tools, such as the “wheel” graphic displaying the advising network, beyond the top navigation. » PM1

- » PM2. Users reported few problems related to the lack of responsive design.

Minor problems

Presentation

- » MP1. Desktop users were less likely than mobile users to scroll down the home page, possibly due to the tendency for the page to break neatly below the news band. » **RC4**
 - One user didn't scroll down at all when exploring the home page.

Navigation

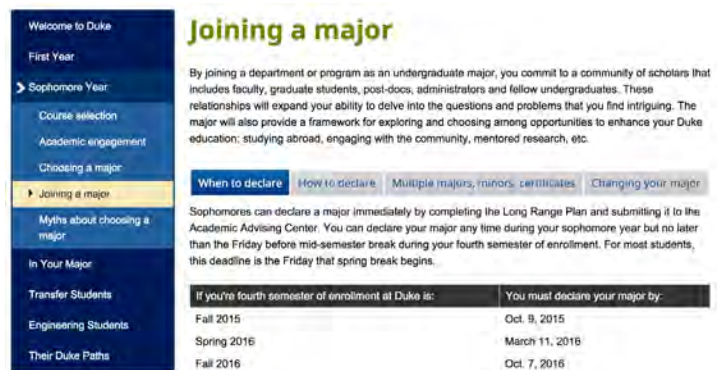
- » MN1. Four users accidentally moved to Duke's overall home page (as opposed to the advising home page), because they assumed a click anywhere on the top banner would take them to the site home page. The users generally realized the mistake and moved right back to the advising site. » **RM1**



Users often failed to distinguish between the banner links to the advising and university home pages. » **MN1**

Task-specific

- » MT1. Task 2: Users were confused by the distinction between “choosing” and “joining” a major. » **RM2**
 - Nine users chose “Choosing a major” before the correct “Joining a major” page, but eight were then able to easily find the information on the “Joining a major” page. (One of those nine tried other options before the “Sophomore Year” section.)
- » MT2. Task 4: While seven users found the first-requirements with little or no problem, observation revealed that needing to click two different tabs on the first-year “Course selection” page was inefficient, as was finding the information via the FAQ page. » **RM3**
- » MT3. Task 5: While users were successful in finding the list of available majors, most did so via the text link on the “Major advisors” page instead of the more direct route, the link on “Your Online Resources.” » **RC5**
- » MT4. Task 6: While users were successful in finding the list of graduation requirements, most did so via the text link on the “In your major” page instead of the more direct route, the link on “Your Online Resources.” » **RC5**
- » MT5. Task 11: Some users found the peer advisors by scrolling the home page but only had a Facebook link to click from that band.
 - Other users first tried “Their Duke Paths” before “Peer Advisors.” » **RM4**



“Joining a major” covers the process of declaring a major, discrete from the choice itself. » **RM2**

Mobile-specific

- » MM1. At least one user clicked on the wrong link, because the link text was too small and too close to adjacent links on the phone screen. » **RC8**

Serious problems

Presentation

- » SP1. Users complained that the information they sought was buried in paragraph text rather than presented prominently. » **RC3, RC6**
 - Upon arrival on the “What a global/civic DAE does” page, one user exclaimed, “Whoa, that’s a lot of text!”
 - On “Engineering students,” one student complained, “There’s a lot of words; I kind of wish I had a graphic.”

What a global/civic DAE does

Opportunities for global and civic engagement at Duke—whether through formal programs such as Global Education (aka study abroad) and DukeEngage, through the curriculum, through service or through student organizations—are numerous and varied. DAEs enhance the role of academic advisors by serving as specialists in civic and global engagement. A DAE will guide you as you explore the options before you and plan for participation in your chosen activities.

Any Duke undergraduate can elect to meet with a DAE at any point during her/his four years at Duke. Most students begin working with a DAE during their first year or early in their sophomore year, but we also encourage juniors and seniors to schedule a DAE meeting.

You are not assigned a specific DAE but can request one based on her personal background ([bios](#)), or you can request “first available.” DAEs can meet with you many times during your Duke career to advise you as you reflect on previous experiences and your interests evolve and deepen.

Interested in opportunities in the [arts and humanities](#) or [natural and quantitative sciences](#)? You can meet with a DAE who specializes in one of those areas.

Students were overwhelmed by the amount of text on some pages. » **SP1**

Navigation

- » SN1. While users almost universally praised the organization of the top-level navigation, they struggled with the subnavigation. » **RS1, RS2**
 - One said the headings were too general.
 - Others expressed frustration with their attempts to find specific information. One complained, “Nothing really had headings that were helpful.”
 - Three users mentioned confusion at the lack of “Junior Year” and “Senior Year” sections under “Your Duke Path.” There are information-rich “First Year” and “Sophomore Year” sections, but the last two years are lumped together under “In Your Major,” in line with the advising structure in which students move from an Academic Advising Center-assigned advisor in the first two years to a major-assigned advisor in the last two.

Task-specific

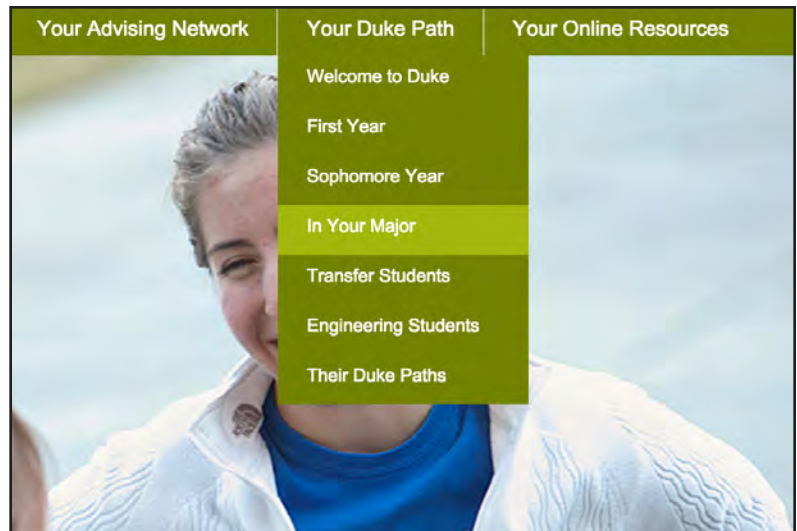
- » ST1. Task 7: Instead of the academic dean, six users identified a different mentor with whom to speak in the event of a crisis preventing the fulfillment of academic responsibilities. The mentors identified these cases would be good contacts and would refer the student to an academic dean. »

RC1, RC2

- Users' failure to find the dean at all is noted below, in CT2.
- » ST2. Task 9: When seeking information on transferring from the Pratt School of Engineering to the Trinity College of Arts & Sciences, four users navigated to "Transfer students" instead of "Engineering students." Two of those users never found the engineering page and did not complete the task. »

- » ST3. Task 10: Only one user experienced no trouble correctly determining whether Duke offers an education major. One user never came up with an answer, and two answered incorrectly, assuming that because there is a director of undergraduate studies for the subject, it must be a major. »

- » ST4. Task 12: Four users noted that they expected contact information and/or hours to be on the home page, most likely at the bottom. None saw the "Contact" footer link. »



Information relevant to students' junior and senior years is arranged based on the organization of the advising system, instead of how students might seek the information. »

Some students experienced confusion about the difference between the "Transfer Students" and "Engineering Students" links when attempting Task 9. »

Mobile-specific

- » SM1. The Duke advising site links occasionally links to tables on the related Trinity College of Arts & Sciences site, rather than hosting that information on its own site. Those tables proved difficult for mobile users to use, requiring frequent scrolling to see column headers. One user's mobile browser would not allow her to scroll horizontally at all on the table. »

RC7

The site relies on charts from the Trinity College site, but those tables are not mobile-friendly. »

Chemistry	5	CHEM 21	CH 201
Chinese	4/5	CHINESE 203	204 level dep plan sco
Computer Science A	4/5	COMPSCI 101	CO
Economics (Macro)	4/5	ECON 21	ECO a st cre ECO 22
Economics (Micro)	4/5	ECON 22	ECO stud cre ECO 22
English (Comp/Lit)	4/5	ENGLISH 20	Any

Critical problems

Presentation

- » CP1. Users noticed the positions in the “Your Advising Network” section but could not easily differentiate among the various roles. » **RC1, RC2**
 - Several users noticed the “wheel” graphic that offered descriptions of these roles but only two users clicked on it.
 - These problems were evident in Tasks 3, 7, and 11, resulting in users failing to locate the best adviser.
- » CP2. Even though explanations of the role of directors of academic engagement on the site are abundant (There is even a video explaining this concept, but no users clicked on it and it has received fewer than 200 views in more than a year on the site.), confusion over the role of the DAE was rampant. » **RC3**
 - Users liked the DAE-related graphics on the “Explore Your Interests” band on the home page but struggled to realize that the three categories listed (arts and humanities, global and civic opportunities, natural and quantitative sciences). They instead tried to click to these pages to find information about specific majors.
 - Even though the term “DAE” is only used when “director of academic engagement” is used elsewhere on the page (and there is a video titled “What is a DAE?”), users wondered aloud for what the abbreviation stood.
 - See descriptions for Task 3 below for examples specifically related to arranging an appointment with a DAE to discuss study abroad.



*Despite two mentions of the directors of academic engagement, users thought the “Explore Your Interests” band on the home page referred to general advising. » **CP2***

Navigation

- » CN1. Three users listed finding specific information or requirements as the hardest thing to do on the site. » **RC4**
 - Both desktop and mobile users gave their lowest post-experiment ratings of agreement to the statement, “Information on the site is easy to find.”
 - This difficulty was reflected in the fact that at least one user failed to complete every task and most tasks saw some users struggle significantly.
- » CN2. Users liked “Your Online Resources” but few used it. » **RC5**

- One user called this the most useful part of the site.
- Another user suggested a drop-down menu showing the separate categories of links on that page, to help site visitors know the purpose of that page.

Task-specific

» CT1. Task 3: When asked to navigate to the page to schedule an appointment to talk about options for study abroad with the appropriate adviser, only six users successfully found the DAE appointment page, and only one did so without serious problems. (That user had minor problems.) » **RC1, RC2, RC3**

- No users found their way using the link in the top navigation. They instead went through links within the body text on other pages.
- Users looked specifically for the term “study abroad,” and were slow to make a connection between the concept of study abroad and related terminology like “global opportunities.”
- Four users went to the global/civic DAE page but did not know they were in the right place. Two of those navigated to the “Talk to a DAE” page, only to click away to the Global Education Office site at the first specific mention of “study abroad.”
- Mobile users had a particularly hard time with this task. Only one completed it, and that came with serious difficulty.

Two users made it to the right page but didn't know it. » **CT1**

- » CT2. Task 7: When prompted to find the person to contact about an extenuating circumstance affecting their school work, only two users easily identified the academic dean. One of those admitted she only knew the answer because of her role as a resident advisor. » **RC1, RC2**
- » CT3. Task 8: Half of users could not determine the proper economics course in which to enroll based on a list of Advanced Placement exam scores. Of those five, two actually chose the wrong course. » **RC6, RC7**
- Two users missed the answer—and two others nearly did—due to the nature of the text beneath the “Economics” tab, which explains placement in paragraph text, first mentioning AP economics standards and then AP calculus standards. Users’ tendency was to see the economics standards and stop reading.
 - Others used the AP score chart, linked from the advising site but hosted by Trinity College of Arts & Sciences. This chart does not mention math scores in relation to economics courses.
 - Others could not find the information. Some looked under the AP section of the FAQ page, which links to the score chart but does not specifically mention economics.

Course placement

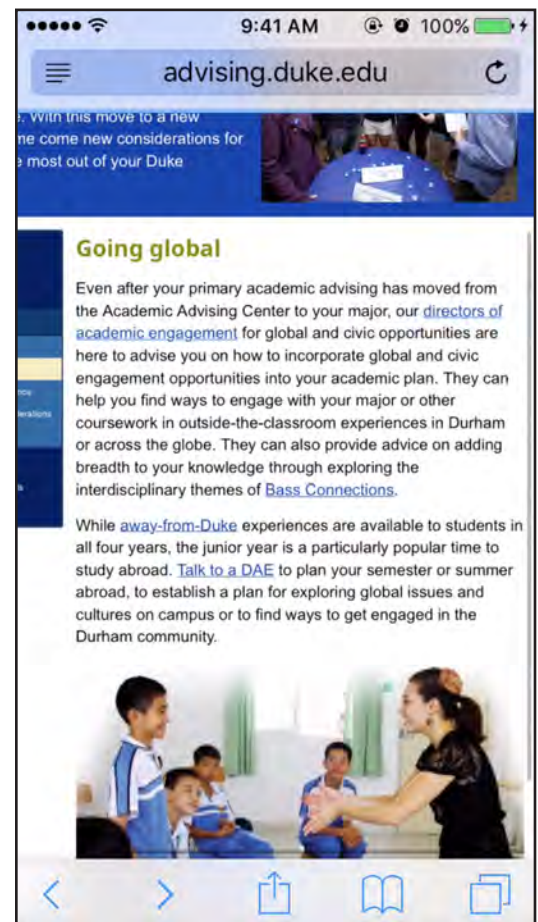


There are two economics courses that incoming first-year students may be eligible to take at Duke. ECON 101 covers introductory concepts in both microeconomics and macroeconomics, and ECON 201D covers intermediate microeconomics, assuming some background in economics and calculus. In order to start in ECON 201D, you need to have scored a 4 or 5 on both the AP Microeconomics and AP Macroeconomics exams. Additionally, you must have demonstrated the requisite math knowledge with a 5 on the AP Calculus AB exam or a 3 or better on the calculus BC test.

Users made placement decisions before reading the final sentence of text-heavy subject tabs. » CT3

Mobile-specific

- » CM1. While users did not complain outwardly about the amount of pinching and scrolling required to read the site, they needed noticeably more effort just to be able to read the site. » **RC8**
 - This was likely a factor in mobile users, on average, rating the site's information as more difficult to understand, as compared to the ratings from desktop users.
- » CM2. One user did not see the left-side subnavigation when zoomed out on her mobile device. Then when she was zoomed in on another page, she didn't couldn't see the body text on the page and the subnavigation at the same time. » **RC8**
- » CM3. Mobile users also sometimes failed to see tabs that could be clicked to reveal different text. » **RC8**
- » CM4. Another user missed the link she needed for one task and the information she needed for another due to the small text on the mobile screen. » **RC8**



Zooming in on the small text on a mobile screen removed the navigation from view. » CM2

Recommendations

Critical changes

- » RC1. Create “Whom to contact when ...” page listing various situations a student might encounter and noting the appropriate advisor or other mentor to contact, along with a link to more information or a contact page. » **CP1, CT2**

The screenshot shows a web page titled "Whom to contact when ...". On the left is a dark blue navigation menu with a yellow header "Whom to Contact" and the following items: Academic Advisors, Academic Deans, AAC Peer Advisors, Directors of Academic Engagement, Preprofessional Advisors, Major Advisors, and Advising Partners. The main content area has a green title "Whom to contact when ...". Below the title is an introductory paragraph: "While you should feel free to contact your academic advisor as a first step with any questions or concerns, you are also welcome to reach out to other mentors on campus for assistance in their areas of expertise. Below is a guide to locating the proper contact when dealing with certain common situations." This is followed by a list of situations, each with a blue link and a small icon (minus or plus) on the right:

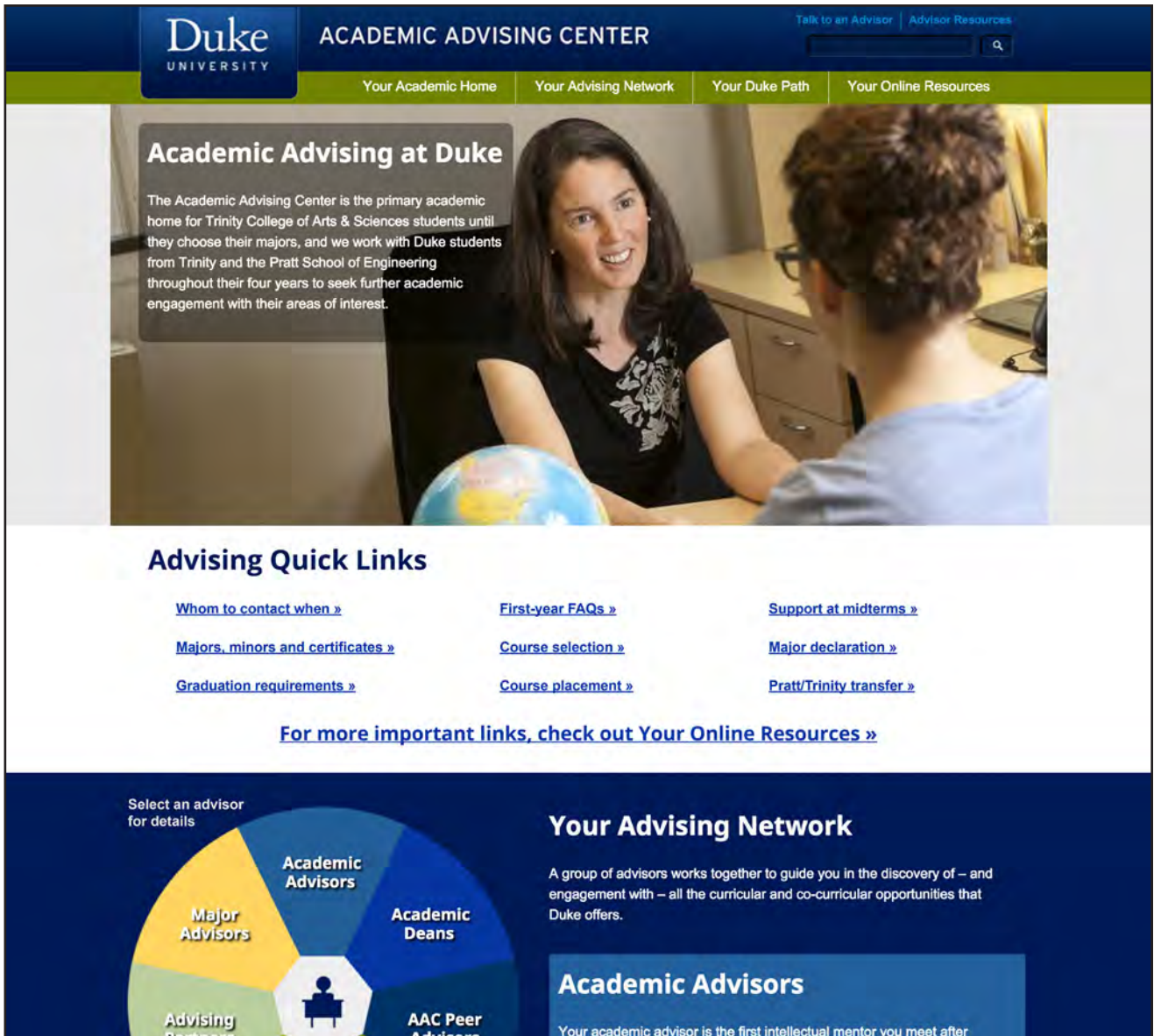
- When you need to schedule your required preregistration advising meeting, discuss potential majors or other academic questions ... —
- ... contact your [academic advisor](#). If you don't have her or his contact details, you can find them in your ACES student center.
- When you want advice from a fellow student about an academic program you're considering ... +
- When you you are experiencing a family emergency or other extenuating circumstance that impacts your ability to complete your course work ... +
- When you are interested in learning more about academic, research and extracurricular opportunities in the arts and humanities ... +
- When you are interested in exploring your options for study abroad, DukeEngage or another global or civic experience, or when you want to talk about opportunities to participate in interdisciplinary research through Bass Connections ... —
- ... contact a [director of academic engagement \(DAE\)](#) for global and civic opportunities. You can [book an appointment](#) with a specific DAE or the first available.
- When you are interested in learning more about academic, research and extracurricular opportunities in the natural and quantitative sciences ... +
- When you want advice on how best to prepare yourself for graduate business school ... +

This page in the “Your Advising Network” section would serve as a quick reference for students seeking situation-specific mentors. » RC1

- » RC2. Add a note to the home-page “wheel” graphic informing users that they can click to view different advisors. » **CP1, CT2**
- » RC3. Clarify DAE abbreviation and role. The most effective solution to CP2 would be to change the job titles of the directors of academic engagement to something more descriptive (e.g. “humanities advisor,” “global advisor,” “sciences advisor”). That sort of administrative change, however, is beyond the scope of this project, so textual changes are necessary to make sure users understand the term “DAE.” » **CP2, CT1**
 - On every page where the directors of academic engagement are mentioned, follow the first reference with a parenthetical mention of the abbreviation. This approach is a direct violation of Associated Press style, which Duke websites generally follow, but is necessary to limit confusion.
 - More clearly and prominently state the role of global/civic DAEs in relation to study abroad. This could include more frequent use of bullet points to list global/civic areas

of specialty advising, including on “Talk to a DAE,” where users’ eyes are currently drawn to a bolded note about a specific subset of students preparing to go abroad.

- » RC4. Replace the news band, which is located directly below the main image on the home page and has not been updated since May 2015, with quick links to the most commonly sought or important pieces of information. » **CN1, MP1**
 - Make this band wider. The current news band breaks cleanly at the bottom of many laptop screens, perhaps causing users not to scroll down the page.

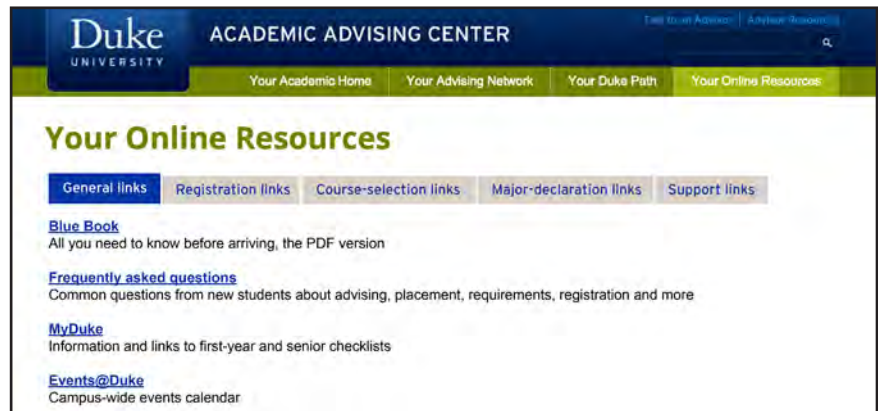
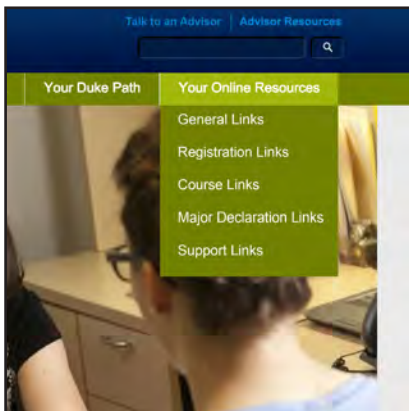


The quick links repurpose a neglected piece of home-page real estate to eliminate the need to browse for key information. » RC4

The note to “Select an advisor for details” clarifies that the “wheel” graphic is an interactive element. » RC2

- » RC5. Add a drop-down menu below the “Your Online Resources” top-level navigation, showing the headings used to categorize the links. Add the word “links” and change the title of the essentials section to “General” for maximum clarity (e.g “General links,” “Registration links”). » **CN2, ST3**

- A corresponding change should be made on the “Your Online Resources page itself, dividing the different categories into tabs. This avoids confusion by giving each drop-down label its own destination when selected.

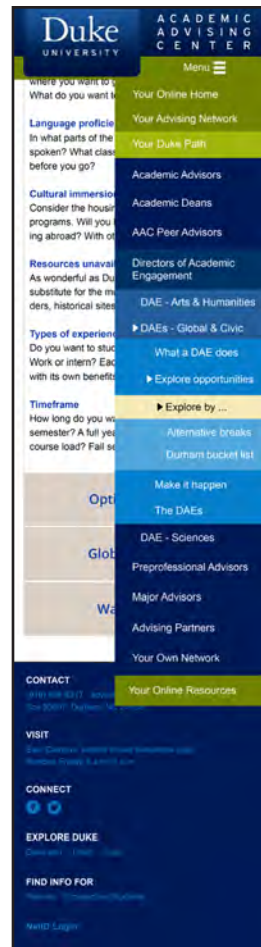
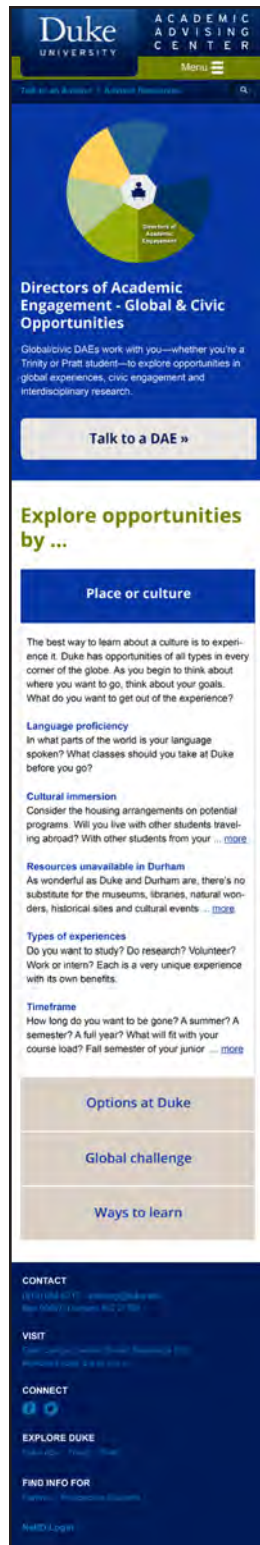


Adding descriptive links below “Your Online Resources” provides clarity for users, and the tabbed links list provides a clear landing place from the drop-down menu while also cutting back on the amount of text on the page. » RC5

- » RC6. Increase use of bulleted and numbered lists, subheadings, and graphics on pages explaining situations with multiple factors to consider, such as placement pages. » **CT3, SP1**
- » RC7. Request changes to webmasters of Trinity College site. » **CT3, ST3, SM1**
 - Ask for more mobile-friendly tables and notations on the Advanced Placement score table when placement in another subject is affected by scores on an AP test in another subject (e.g. economics placement affected by AP math score).
 - If Trinity can or will not make these changes, consider posting the information in a mobile-friendly format on the advising site itself.
- » RC8. Employ responsive design to ensure content appropriately resizes for mobile browsers. » **CM1, CM2, CM3, CM4**
 - Move mobile navigation to “hamburger” button as part of persistent header bar, where it can be easily accessed no matter what part of the page the user is viewing.
 - Stack mobile tabs vertically in “accordion” style, so they are large enough to see and click.
 - Ensure text is large enough for users to easily read and, when changing pages, tap with their thumbs.

Serious changes

- » RS1. Reconsider subnavigation and accompanying section and page titles, seeking to provide a clearer purpose for each section or page. For example, “Going global” could be renamed, “Study abroad & global opportunities.” » **SN1**
- » RS2. Divide “In Your Major” section to separate sections for junior and senior years. » **SN1**
- » RS3. Add prominent, clarifying sentence to the top of “Transfer Students” redirecting students interested in transferring from the Pratt School of Engineering. In this case, changing navigation for clarity is impractical, but action should be taken to catch those who have landed in the wrong spot. » **ST2**
- » RS4. Add the Academic Advising Center’s location, contact information and hours to the site footer. » **ST4**



Responsive content pages would hide nonessential images, stack tabbed content vertically and truncate long text blocks. A persistent header would keep the menu accessible as users scrolled down the page.

» RC8

A responsive design would resize and rearrange page elements for smaller screens, allowing users to scroll through content in a single column and swipe horizontally within sets of options. » RC8

<p>CONTACT (919) 684-6217 advising@duke.edu Box 90697, Durham, NC 27708</p> <p>VISIT East Campus, behind Brown Residence Hall Monday-Friday, 8 a.m.-5 p.m.</p>	<p>CONNECT</p> <p>f t v</p> <p>NetID Login</p>	<p>EXPLORE DUKE Duke.edu Trinity Pratt</p> <p>FIND INFO FOR Parents Prospective students</p>
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Users look for contact information and hours in the site footer; they should find those things there. » **RS4**

Minor changes

- » **RM1.** Make the entire top header bar link to the site home page, instead of linking the university logo to the university home page. » **MP1**
 - Alternatively, eliminate the link to the university home page while maintaining the link to the site home page when selecting the “Academic Advising Center” text on the header bar.
- » **RM2.** Combine the “Choosing a major,” “Joining a major,” and “Myths about joining a major” pages to a single “Major declaration” page. » **MT1**
 - The page should include the same tabs that are currently on “Joining a major,” with additional tabs displaying text from the “Choosing a major” and “Myths about choosing a major” pages.

Combining the content of three pages into one should make it easier for users to locate information and choosing and declaring a major. » **RM2**

Using a numbered list makes text easier to scan. » **RM6**

- » **RM3:** Change the “WRITING 101” and “Seminar” tabs to a single “First-year requirements” tab on the first-year “Course selection” page. » **MT2**
- » **RM4:** Add a “Learn more” link on the “Your Peer Advisors” band on the home page. » **MT3**

APPENDIX B: Usability Report Presentation

Usability report: advising.duke.edu

Casey Hart
April 15, 2016

Master of Arts in Technology and
Communication thesis project

Laura Ruel, thesis project chair

Melanie Burkett, committee member

Chris Roush, committee member

University of North Carolina-Chapel Hill

Outline

- » Introduction
- » Method
- » Results
- » Summary of findings
- » Minor problems
- » Serious problems
- » Critical problems
- » Recommendations

Introduction

Academic advising websites

- » Undergraduate education becoming increasingly complex
- » “Student advising is an essential component of a successful academic experience.” (Feghali, Zbib, & Hallal, 2011)
- » Advising websites aid advisers (Steele & Thurmond, 2009). Less time on logistics = more time for substantive discussion

Introduction

Assessing usability

- » Definition of something usable (Krug, 2014)
 - “A person of average (or even below average) ability and experience can figure out how to use the thing without it being more trouble than it’s worth.”
- » Factors in usability (Nielsen, 2012a): learnability, efficiency, memorability, errors, satisfaction

Introduction

Assessing usability

- » Usability testing (Nielsen, 2012a)
 - Representative users
 - Representative tasks
 - Observation
- » Testing five users can identify 80 percent of usability problems (Nielsen, 2000, 2012b).
- » Iterative testing (Krug, 2010; Madrigal & McClain, 2010; Nielsen, 2000)

Introduction

advising.duke.edu

The desktop screenshot shows the top navigation bar with the Duke University logo and the title 'ACADEMIC ADVISING CENTER'. Below the navigation bar are four main menu items: 'Your Academic Home', 'Your Advising Network', 'Your Duke Path', and 'Your Online Resources'. The main content area features a large image of students in a lounge setting. Overlaid on this image is a text box titled 'Academic Advising at Duke' which describes the center's role in coordinating academic advising for students in Trinity College until they declare their majors. Below the image is a section titled 'Got Questions? We've Got 110 Answers' with a brief description and a 'more' link. A circular diagram on the right side of the page illustrates the 'Your Advising Network' with roles such as Academic Advisors, Academic Deans, AAC Peer Advisors, Directors of Academic Engagement, Pre-professional Advisors, Advising Partners, and Major Advisors.

The mobile screenshot shows the website adapted for a smartphone. The top status bar displays the time as 9:41 AM and 100% battery. The browser address bar shows 'advising.duke.edu'. The layout is condensed, with the navigation bar and menu items appearing in a smaller font. The 'Academic Advising at Duke' text box is also scaled down. The 'Got Questions? We've Got 110 Answers' section is visible, along with the 'Your Advising Network' diagram and text. The bottom of the screen features a mobile navigation bar with icons for back, forward, home, search, and a list of items.

Introduction

Research questions

- » What positive signs of usability are found on the Duke University Academic Advising Center website?
- » What minor problems hinder usability?
- » What serious problems hinder usability?
- » What critical problems hinder usability?

Method

Setting and equipment

- » One-on-one observational interviews
- » UNC-Chapel Hill research lab
- » Laptop with Google Chrome
- » Users' own Apple iPhone 6/6s devices with Safari
- » QuickTime for screen recording

Method

Sampling

- » UNC-Chapel Hill undergraduate students
- » School of Media and Journalism research pool
- » Five desktop/five mobile

Method

Data collection

- » Pre-experiment verbal questions
- » Pre-experiment questionnaire
- » Observation of/feedback on home-page exploration
- » Observation of/feedback on task completion
- » Post-experiment questionnaire
- » Recordings

Method

Data analysis

» Averaged quantifiable data

- Survey responses
- Task completion

» Defined problem types

- Minor
- Serious
- Critical

Results

Participant demographics

- » Mean age: 21.9
 - Minimum: 19, maximum: 35 (part-time student)
 - Mean among full-time undergraduates: 20.4
- » Class year: 4 sophomores, 3 juniors, 2 seniors
- » Sex: 9 female, 1 male
- » Race: 8 white, 1 Hispanic, 1 black/African-American and Hispanic

Results

Participant demographics

- » Major (including intended and double majors):
 - 10 media and journalism (4 in public relations)
 - 1 communication
 - 1 exercise and sport science
 - 1 political science

- » Most-used device: 4 desktop/laptop, 4 equal use of desktop/laptop and mobile, 2 mobile

Results

Task success

User	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	Task 8	Task 9	Task 10	Task 11	Task 12
D1	3	2	2	3	3	3	1	2	3	2	2	3
D2	2	2	1	3	2	2	3	1	2	2	3	2
D3	3	2	1	2	0	1	1	2	2	0	0	2
D4	2	1	1	3	3	3	1	0	0	0	3	2
D5	0	2	1	0	3	3	0	0	3	0	3	3
M1	3	2	0	3	3	3	1	0	3	2	0	3
M2	3	2	0	1	3	1	1	3	0	1	0	1
M3	2	2	0	0	3	2	3	0	1	3	2	2
M4	3	2	0	3	0	3	1	3	3	2	2	3
M5	2	0	1	3	3	3	1	0	2	1	3	0
Overall	2.3	1.7	0.7	2.1	2.3	2.4	1.3	1.1	1.9	1.3	1.8	2.1
Desktop	2	1.8	1.2	2.2	2.2	2.4	1.2	1.0	2.0	0.8	2.2	2.4
Mobile	2.6	1.6	0.2	2	2.4	2.4	1.4	1.2	1.8	1.8	1.4	1.8

Results

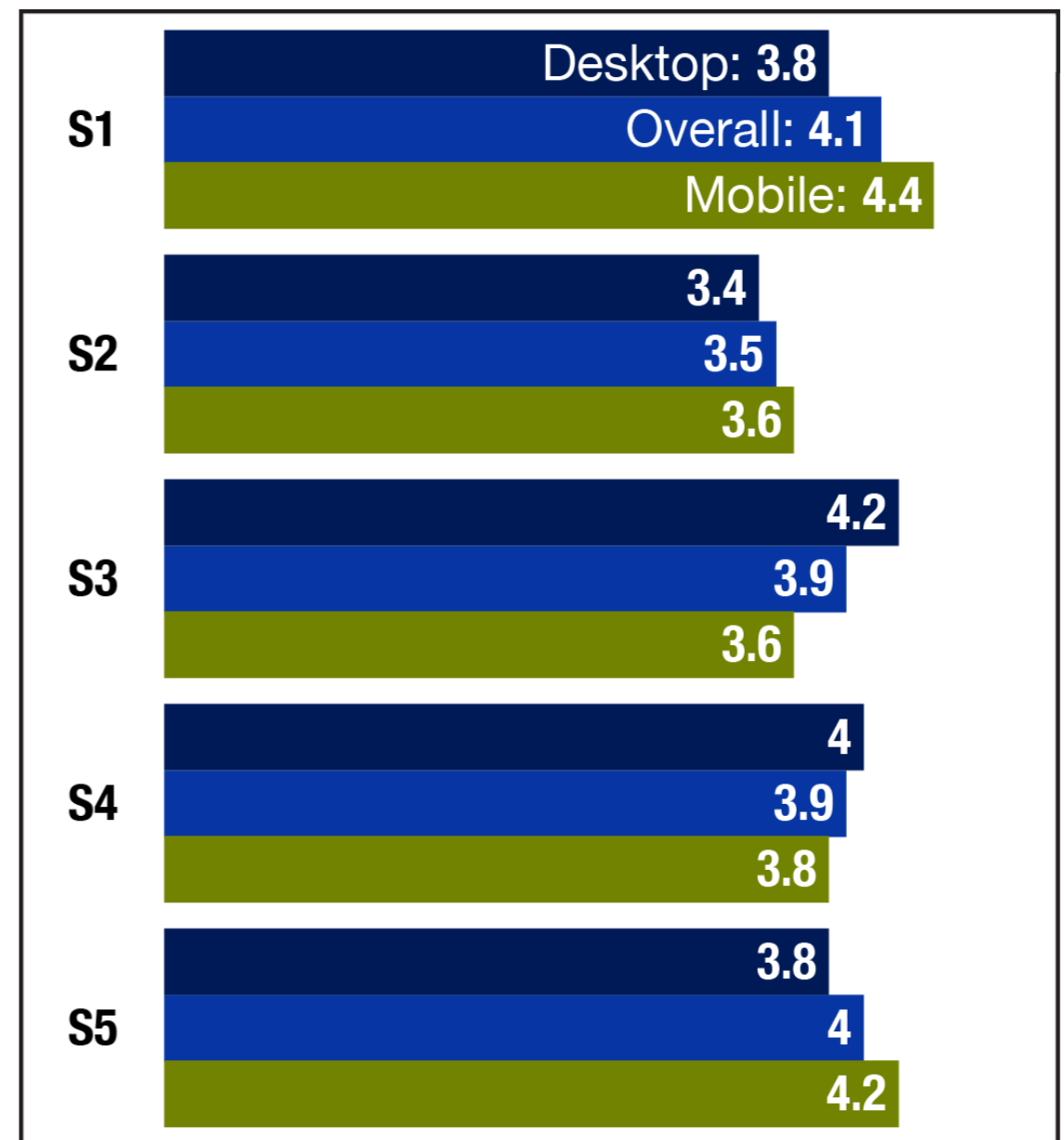
Post-experiment responses

- » Users rated their agreement with each of these statements, from 1 (strongly disagree) to 5 (strongly agree):
 1. The site's design and photos are attractive.
 2. Information on the site is easy to find.
 3. Information on the site is easy to understand.
 4. The site's navigation is easy to use.
 5. The site is designed with me in mind.

Results

Post-experiment responses

User	S1	S2	S3	S4	S5
D1	4	4	4	5	4
D2	4	3	4	4	3
D3	4	3	5	4	4
D4	4	3	4	3	4
D5	3	4	4	4	4
M1	5	4	3	4	5
M2	4	4	3	4	4
M3	4	3	3	2	5
M4	5	4	4	5	5
M5	4	3	5	4	4
Desktop	3.8	3.4	4.2	4	3.8
Overall	4.1	3.5	3.9	3.9	4
Mobile	4.4	3.6	3.6	3.8	4.2



Summary of findings

- » Varying levels of success with task completion
- » Overall structure of the site is solid; praise for top-level navigation
- » Conveys strong senses of professionalism, care, and official university affiliation
- » Some persistent problems
- » Noticeable effect from lack of mobile-friendly design

Findings key

Finding type

***P**ositive finding*

***M**inor finding*

***S**erious finding*

***C**ritical finding*

***R**ecommendation*

Number in list

PP1.

Problem category

***P**resentation **N**avigation*

***T**ask-specific **M**obile-specific*

Or recommendation category

***C**ritical **S**erious **M**inor*

Positive findings

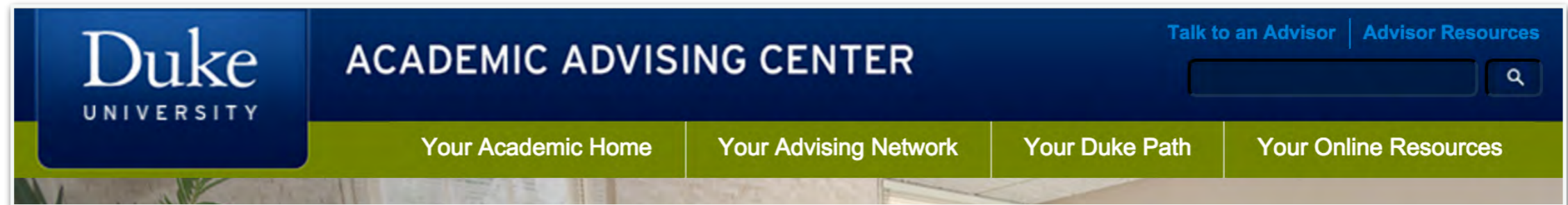
Presentation

- » PP1. Overall favorable impression
- » PP2. Easily identified with Duke and advising
 - “You know it’s Duke”
- » PP3. Positive response to colors, images, graphics
 - “Inviting,” “Professional,” “Makes it seem like they really care”
 - Mobile users especially liked the look of the site.

Positive findings

Navigation

- » PN1. Strong affinity for top-level navigation

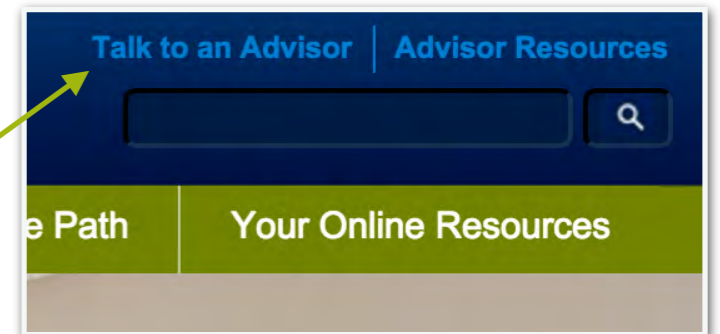


- » PN2. Easy-to-use “Your Duke Path” section
- » PN3. Other navigation elements earned praise from individual users.

Positive findings

Task-specific

- » PT1. Task 1: “Get as far as you can in the process of opening an email to your advisor. Declare aloud when you have completed the task.”
 - Four used the “Talk to an Advisor” link.
- » PT2. Task 2: “Answer this question: What is the deadline for most sophomores to declare a major in 2015-16?”



Positive findings

Task-specific

- » PT3. Task 5: “Answer this question: What is the name of a specific person whom you can contact if you are considering majoring in Asian and Middle Eastern studies and want more information?”
- » PT4. Task 6: “Go to the page listing all graduation requirements. Declare aloud when you have completed the task.”

Positive findings

Task-specific

- » PT4. Task 7: “Answer this question: Whom should you contact if you are experiencing a family emergency or other extenuating circumstance that impacts your ability to complete your course work? I’m looking for a position, not a specific name.”
- » PT5. Task 12: “Answer this question: When and where can a student visit the Academic Advising Center?”

Positive findings

Mobile-specific

- » PM1. Mobile users more likely to explore the home page and use the “wheel” graphic



- » PM2. Few verbal complaints about lack of responsive design

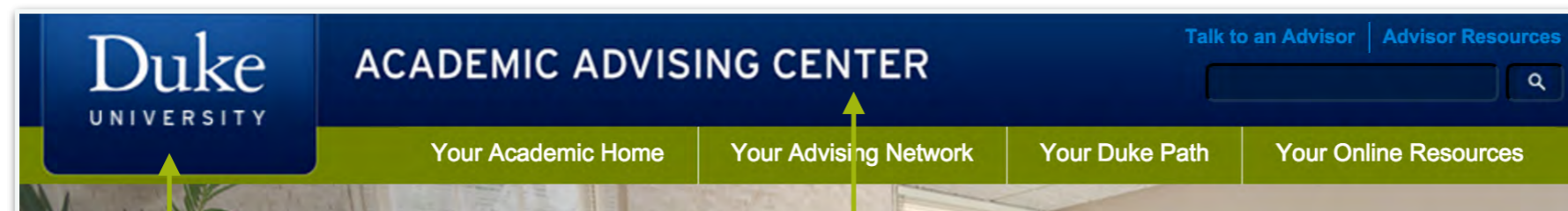
Minor problems

Presentation

» MP1. Desktop users less likely to scroll

Navigation

» MN1. Tendency to move to university home page instead of site home



Links to duke.edu

Returns to advising.duke.edu

Minor problems

Task-specific

- » MT1. Task 2: “Answer this question: What is the deadline for most sophomores to declare a major in 2015-16?”
 - Confused by the distinction between “choosing” and “joining” a major

Minor problems

Chrome File Edit View History Bookmarks People Window Help

New Tab Course selection | Academ...

advising.duke.edu/sophomore

Academic Calendar Sakai Landing MJ MATC MAJD ESC IHC Salesforce Emma AY MATC form Cert form MA form Davie Qualtrics Other Bookmarks

declaration together with your classmates and faculty from your new major at the Major's Celebration.

Welcome to Duke

- First Year
- Sophomore Year
 - Course selection
- Academic engagement
 - Choosing a major
 - Joining a major
 - Myths about choosing a major
- In Your Major
 - Transfer Students
 - Engineering Students
 - Their Duke Paths

Course selection

During your sophomore year, you will continue to build the academic foundation you started during your first year. This process includes continued exploration of disciplines through coursework, conversations with your academic advisor about your experiences, seeking advice from peer advisors and gathering information about majors you are considering.

If you have a major in mind, you've probably already enrolled in at least one of its introductory courses. You should also schedule an informational meeting with the [director of undergraduate studies](#) and work on fulfilling the necessary preliminary requirements.

If you're still choosing among majors, you have time to explore through coursework and discussion with academic advisors, directors of academic engagement, peer advisors and others. Even while you're defining your disciplinary focus through the major, you will also add breadth in your coursework by fulfilling Trinity College's [curriculum requirements](#). You can also explore the interdisciplinary themes of [Bass Connections](#).

INFO FOR Parents Prospective Students

CONNECT

Duke.edu Trinity Pratt Contact

Minor problems

Task-specific

- » MT2. Task 4: “Answer this question: What two course requirements must all students complete during their first year?”
 - Two different tabs is inefficient.
- » MT3. Task 5: “Answer this question: What is the name of a specific person whom you can contact if you are considering majoring in Asian and Middle Eastern studies and want more information?”
 - Didn't use “Your Online Resources”

Minor problems

Task-specific

- » MT4. Task 6: “Go to the page listing all graduation requirements. Declare aloud when you have completed the task.”
 - Didn’t use “Your Online Resources”
- » MT5. Task 11: “Answer this question: You are thinking about majoring in biology. What is the name of a specific fellow student who could talk to you about his experience studying that subject at Duke?”
 - No internal peer-advising link on home-page band

Minor problems

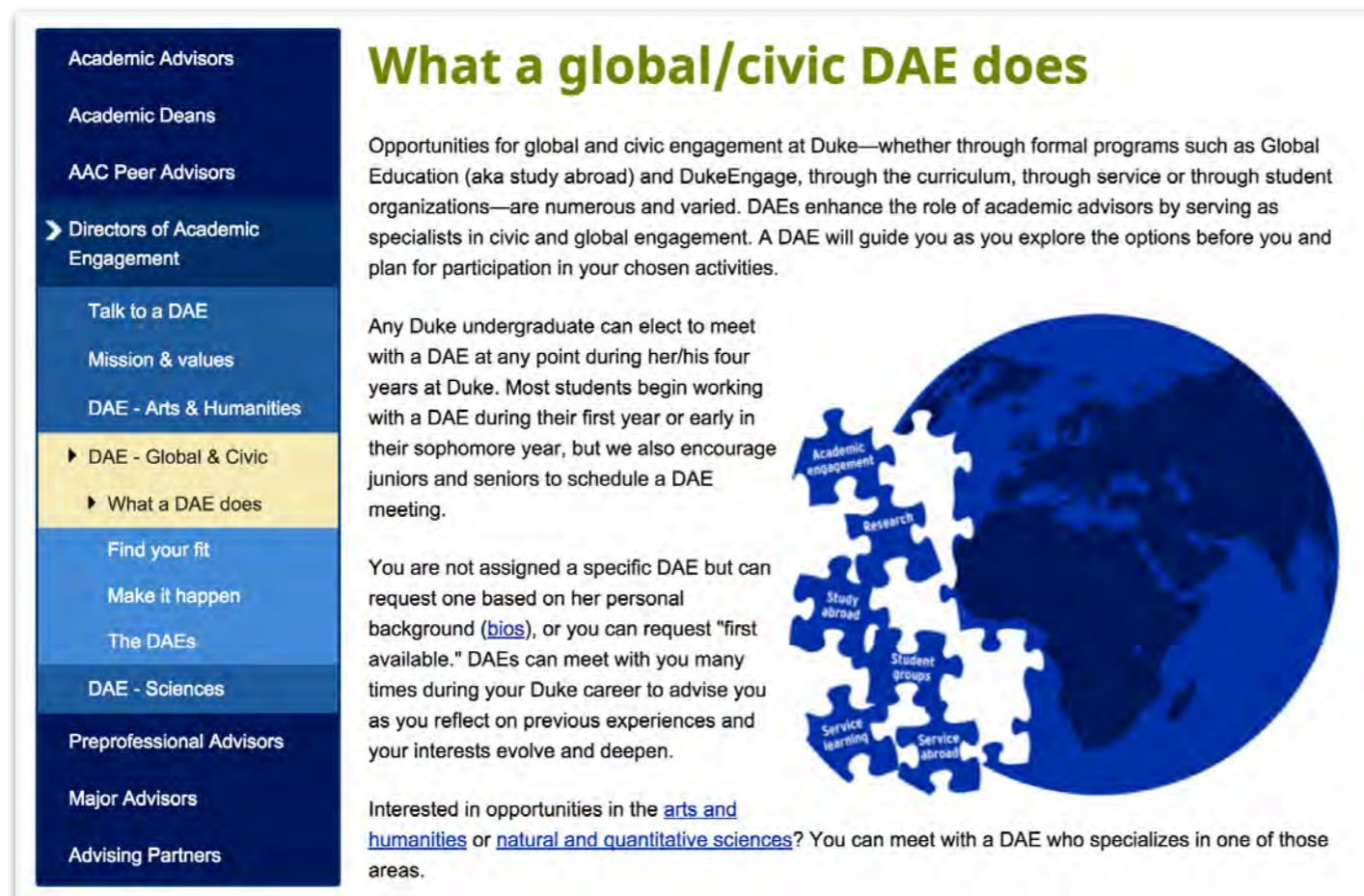
Mobile-specific

- » MM1. Wrong link tapped due to small text and adjacent links

Serious problems

Presentation

» SP1. Information buried in paragraph text



The screenshot shows a website page with a dark blue navigation menu on the left. The menu items are: Academic Advisors, Academic Deans, AAC Peer Advisors, Directors of Academic Engagement (highlighted with a white arrow), Talk to a DAE, Mission & values, DAE - Arts & Humanities, DAE - Global & Civic (highlighted in yellow), What a DAE does (highlighted in yellow), Find your fit, Make it happen, The DAEs, DAE - Sciences, Preprofessional Advisors, Major Advisors, and Advising Partners.


What a global/civic DAE does

Opportunities for global and civic engagement at Duke—whether through formal programs such as Global Education (aka study abroad) and DukeEngage, through the curriculum, through service or through student organizations—are numerous and varied. DAEs enhance the role of academic advisors by serving as specialists in civic and global engagement. A DAE will guide you as you explore the options before you and plan for participation in your chosen activities.

Any Duke undergraduate can elect to meet with a DAE at any point during her/his four years at Duke. Most students begin working with a DAE during their first year or early in their sophomore year, but we also encourage juniors and seniors to schedule a DAE meeting.

You are not assigned a specific DAE but can request one based on her personal background ([bios](#)), or you can request "first available." DAEs can meet with you many times during your Duke career to advise you as you reflect on previous experiences and your interests evolve and deepen.

Interested in opportunities in the [arts and humanities](#) or [natural and quantitative sciences](#)? You can meet with a DAE who specializes in one of those areas.



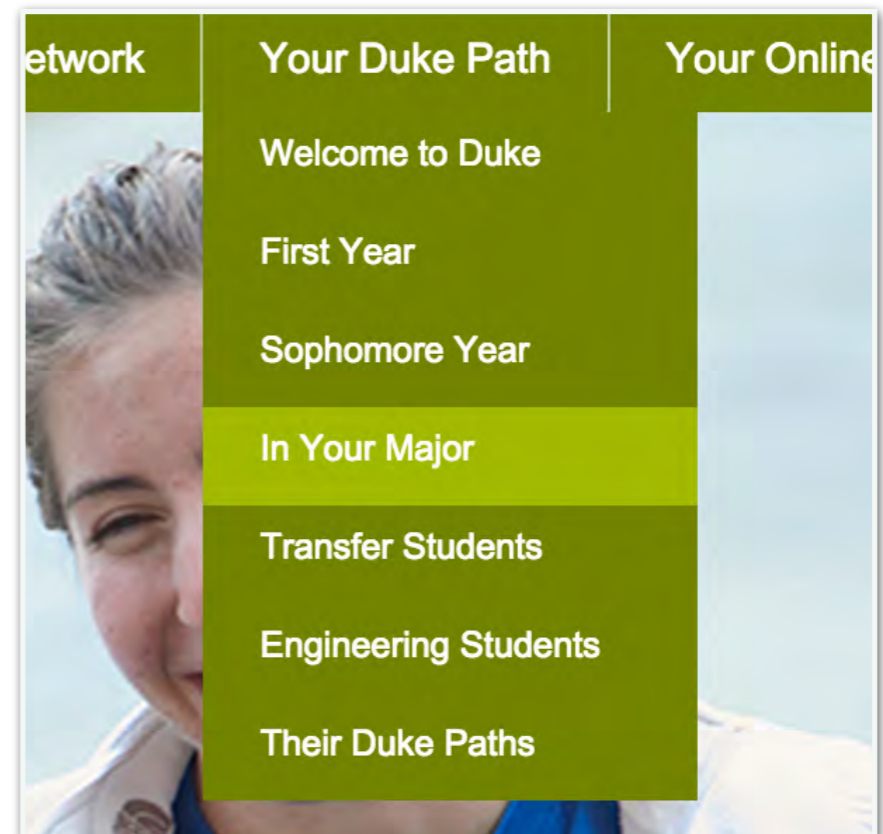
"Whoa, that's a lot of text!"

Serious problems

Navigation

» SN1. Struggles with subnavigation

- “Nothing really had headings that were helpful.”
- Confusion about lack of junior and senior pages under “Your Duke Path”



Serious problems

Task-specific

- » ST1. Task 7 (academic dean)
 - Found mentor for referral, but not correct mentor for task
- » ST2. Task 9: “You are an engineering student but have decided you would like to major in English instead. Get as far as you can in the process of transferring to the college of arts and sciences.”
 - Confusion about “Transfer Students” vs. “Engineering Students”

Serious problems

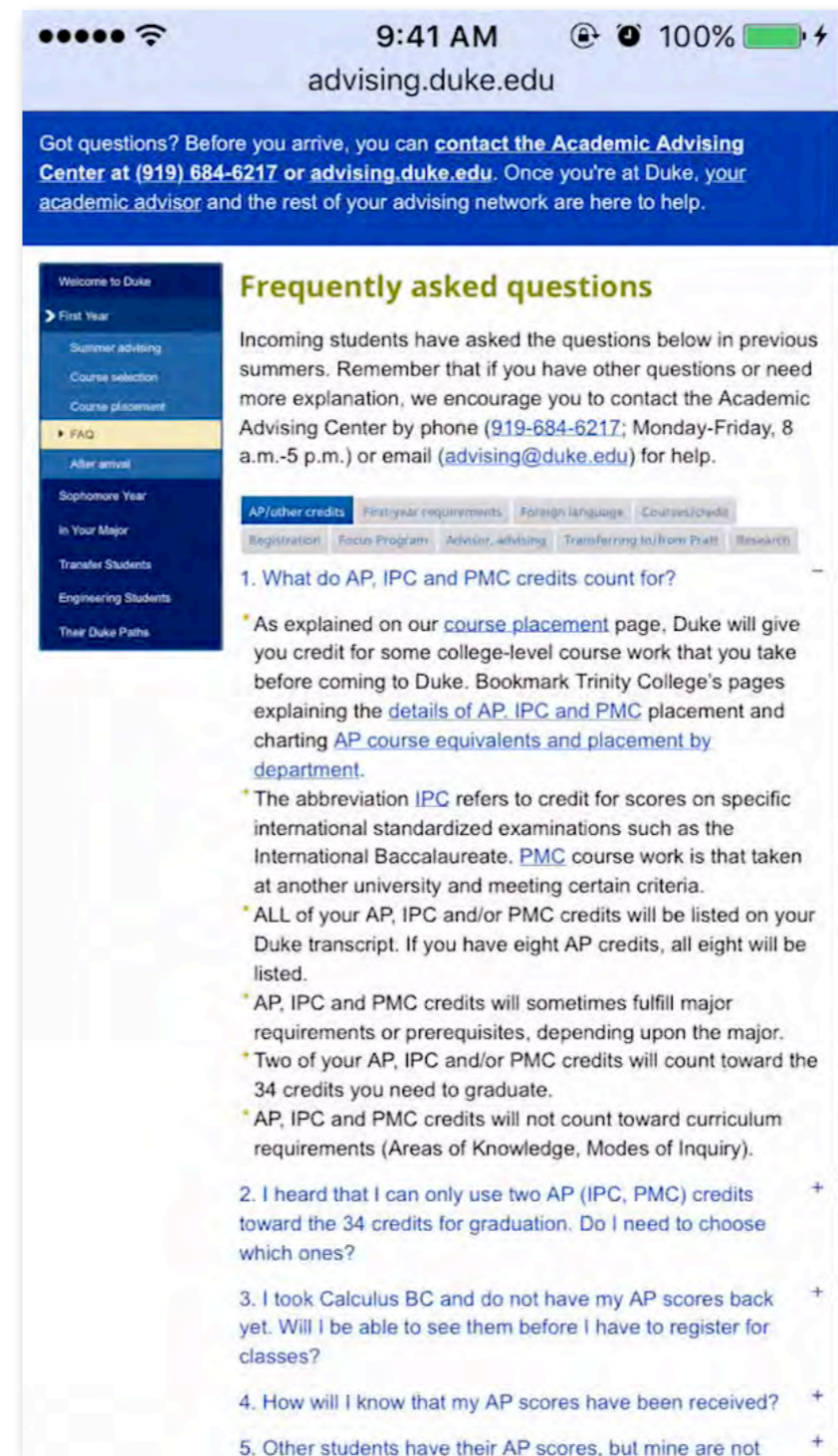
Task-specific

- » ST3. Task 10: “Answer this question: Does Duke offer a major in education?”
 - Hard to find; didn’t go to “Your Online Resources”
- » ST4. Task 12: “Answer this question: When and where can a student visit the Academic Advising Center?”
 - Users expected contact information and hours to be in site footer.

Serious problems

Mobile-specific

» SM1. Chart content linked from Trinity College of Arts & Sciences site difficult to read on mobile



Critical problems

Presentation

- » CP1. Trouble differentiating among mentor roles in “Your Advising Network”
- » CP2. Confusion about the role of the director of academic engagement, or DAE
 - Despite explainer video and use of full title on first reference

Explore Your Interests

Directors of academic engagement meet with you one-on-one to identify and discuss opportunities for academic exploration beyond the traditional classroom, specializing in three areas:

- Arts & Humanities** (represented by a blue silhouette of a head)
- Global & Civic Opportunities** (represented by a blue globe)
- Natural & Quantitative Sciences** (represented by a blue Erlenmeyer flask)

[What is a DAE? Watch the video »](#)

Critical problems

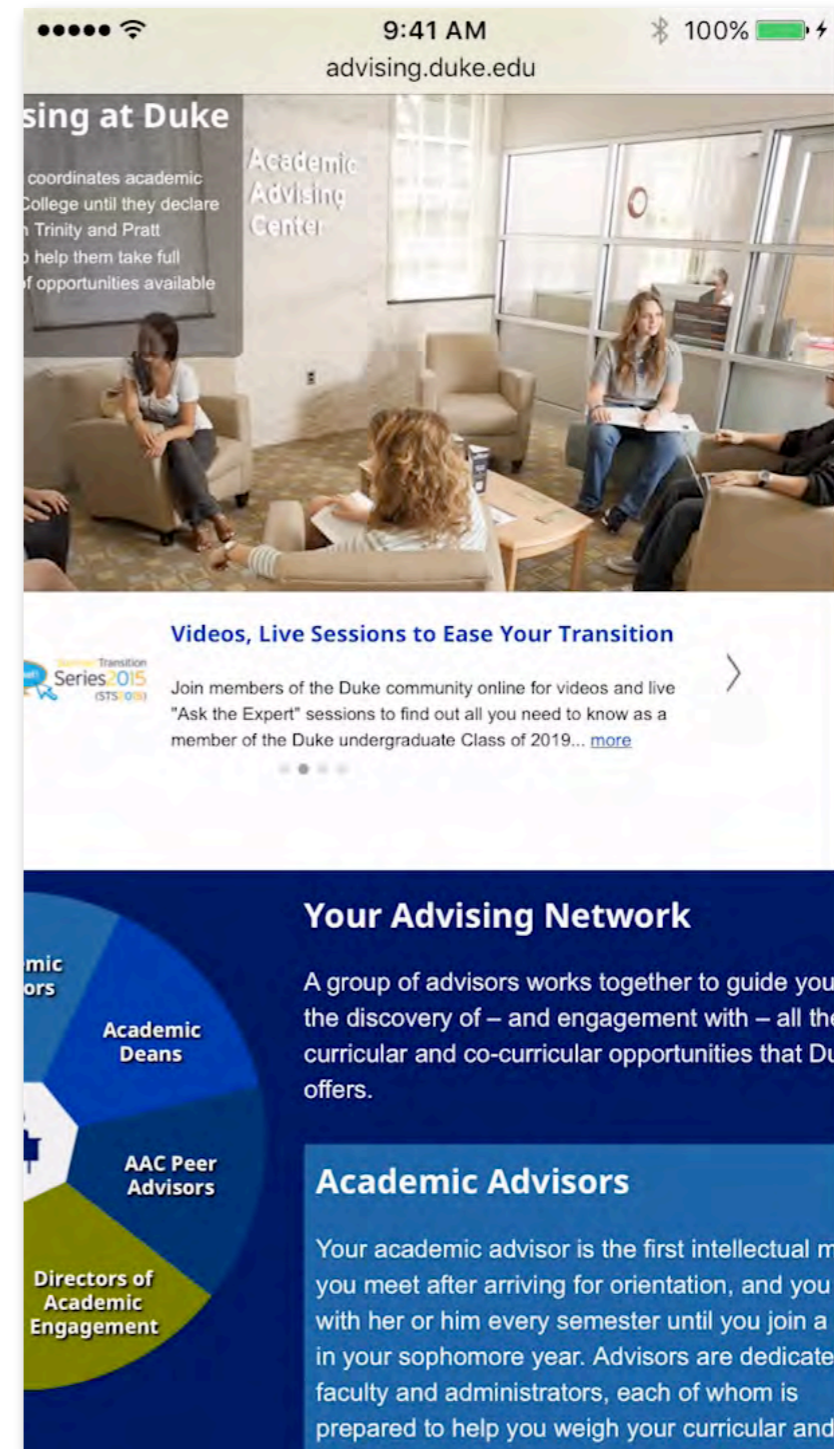
Navigation

- » CN1. Trouble finding information
 - Cited as hardest thing to do on site
 - Lowest post-experiment ratings
 - At least one user failed to complete every task.
- » CN2. Users liked “Your Online Resources,” but few used it.
 - One user call it the most useful part of the site.

Critical problems

Task-specific

» CT1. Task 3: “Go to the page to make an appointment to explore your options for study abroad and other opportunities. Declare aloud when you have completed this task.”



Critical problems

Task-specific

» CT2. Task 7 (academic dean)

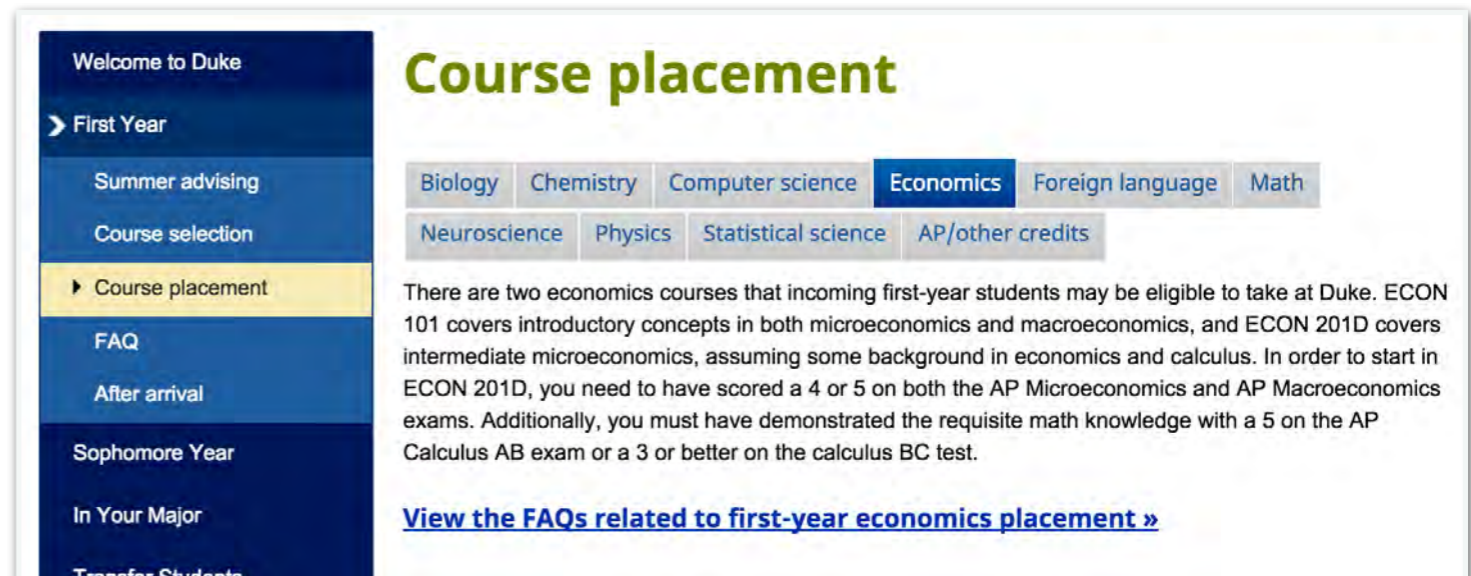
- Only two users easily identified the academic dean.
- One of those only knew due to her job as a residential advisor at UNC-Chapel Hill.

Critical problems

Task-specific

» CT3. Task 8: “Answer this question: You are an incoming first-year considering taking an economics course first semester. Based on the following Advanced Placement test scores, for which course should you register?”

- Various struggles, including with answer in paragraph text



The screenshot shows a web page titled "Welcome to Duke" with a navigation menu on the left. The "First Year" section is expanded, and "Course placement" is highlighted. The main content area is titled "Course placement" and features a grid of subject categories. "Economics" is selected and highlighted in blue. Below the grid, there is a paragraph of text explaining the two economics courses available (ECON 101 and ECON 201D) and the prerequisites for each. A link at the bottom of the page reads "View the FAQs related to first-year economics placement »".

Welcome to Duke

> First Year

- Summer advising
- Course selection
- Course placement**
- FAQ
- After arrival

Sophomore Year

In Your Major

Transfer Students

Course placement

Biology Chemistry Computer science **Economics** Foreign language Math

Neuroscience Physics Statistical science AP/other credits

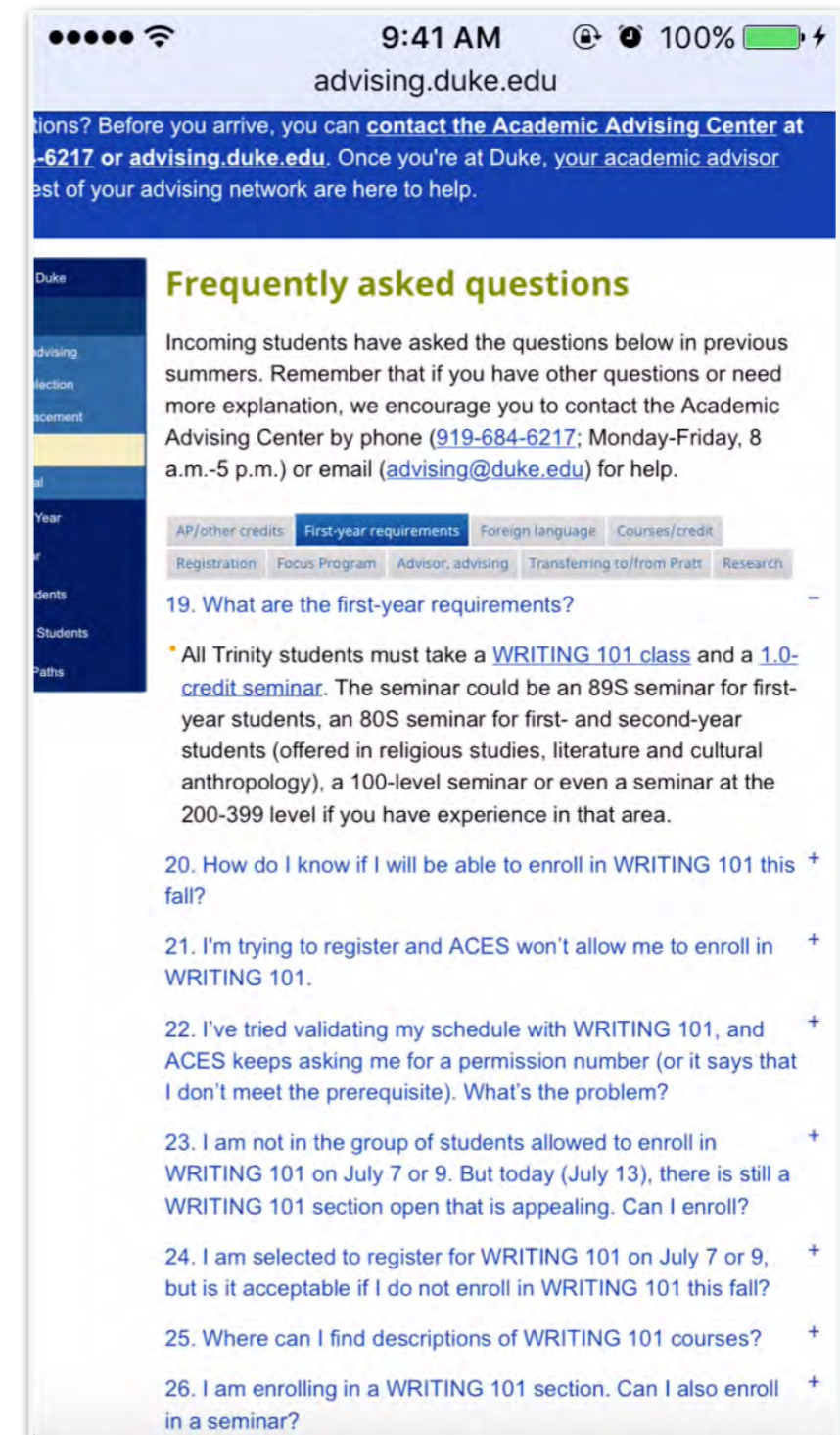
There are two economics courses that incoming first-year students may be eligible to take at Duke. ECON 101 covers introductory concepts in both microeconomics and macroeconomics, and ECON 201D covers intermediate microeconomics, assuming some background in economics and calculus. In order to start in ECON 201D, you need to have scored a 4 or 5 on both the AP Microeconomics and AP Macroeconomics exams. Additionally, you must have demonstrated the requisite math knowledge with a 5 on the AP Calculus AB exam or a 3 or better on the calculus BC test.

[View the FAQs related to first-year economics placement »](#)

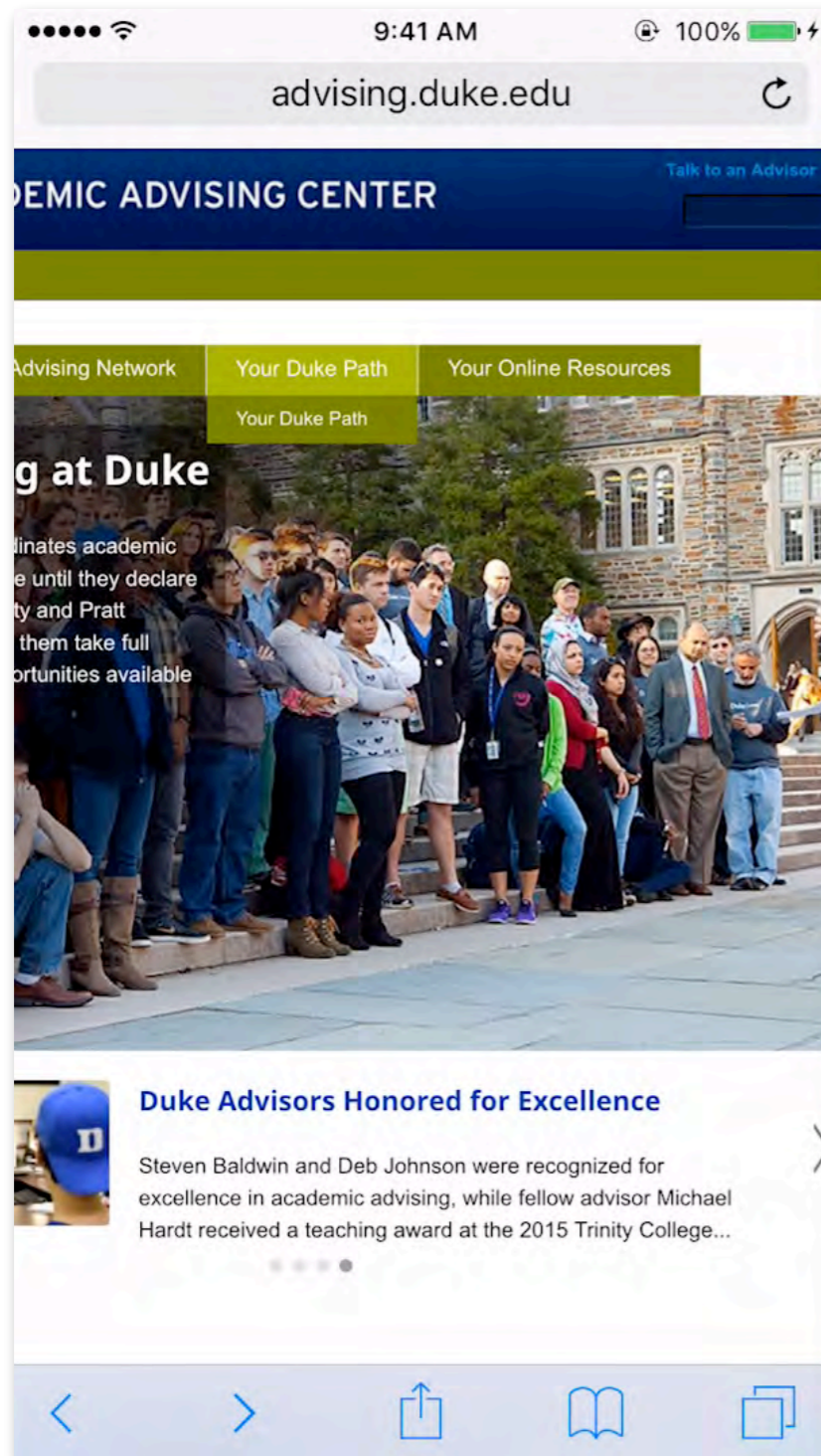
Critical problems

Mobile-specific

- » CM1. Noticeably more effort required just to read site
- » CM2. Inability to see navigation and body text simultaneously
- » CM3. Failure to see tabs
- » CM4. Small text



Critical problems



Recommendations

Critical changes

- » RC1. “Whom to contact when ...” page
- » RC2. Note informing users of “wheel” functionality

The screenshot shows a website interface. On the left is a dark blue sidebar with a yellow header 'Whom to Contact' and a list of roles: Academic Advisors, Academic Deans, AAC Peer Advisors, Directors of Academic Engagement, Preprofessional Advisors, Major Advisors, and Advising Partners. The main content area has a yellow header 'Whom to contact when ...' and a paragraph of introductory text. Below this is a list of scenarios with expandable/collapsible icons (minus and plus signs) on the right. The scenarios include scheduling preregistration meetings, seeking peer advice, handling family emergencies, learning about arts/humanities opportunities, exploring study abroad options, learning about natural/quantitative sciences opportunities, and preparing for graduate business school.

Whom to Contact

- Academic Advisors
- Academic Deans
- AAC Peer Advisors
- Directors of Academic Engagement
- Preprofessional Advisors
- Major Advisors
- Advising Partners

Whom to contact when ...

While you should feel free to contact your academic advisor as a first step with any questions or concerns, you are also welcome to reach out to other mentors on campus for assistance in their areas of expertise. Below is a guide to locating the proper contact when dealing with certain common situations.

- When you need to schedule your required preregistration advising meeting, discuss potential majors or other academic questions ... -
- ... contact your [academic advisor](#). If you don't have her or his contact details, you can find them in your ACES student center.
- When you want advice from a fellow student about an academic program you're considering ... +
- When you you are experiencing a family emergency or other extenuating circumstance that impacts your ability to complete your course work ... +
- When you are interested in learning more about academic, research and extracurricular opportunities in the arts and humanities ... +
- When you are interested in exploring your options for study abroad, DukeEngage or another global or civic experience, or when you want to talk about opportunities to participate in interdisciplinary research through Bass Connections ... -
- ... contact a [director of academic engagement \(DAE\)](#) for global and civic opportunities. You can [book an appointment](#) with a specific DAE or the first available.
- When you are interested in learning more about academic, research and extracurricular opportunities in the natural and quantitative sciences ... +
- When you want advice on how best to prepare yourself for graduate business school ... +
- When you want discuss your progress toward meeting prehealth course requirements ... +

Recommendations


Critical changes

- » RC3. Clarify DAE abbreviation and role.
 - Ideal solution would be new title
 - Parenthetical abbreviation on first reference
 - Clearer affiliation with study abroad

- » RC4. Replace news band with “Advising Quick Links.”

Recommendations

Critical changes




Advising Quick Links

Whom to contact when »	First-year FAQs »	Support at midterms »
Majors, minors and certificates »	Course selection »	Major declaration »
Graduation requirements »	Course placement »	Pratt/Trinity transfer »

[For more important links, check out Your Online Resources »](#)

Your Advising Network

A group of advisors works together to guide you in the discovery of – and engagement with – all the curricular and co-curricular opportunities that Duke offers.



Select an advisor for details

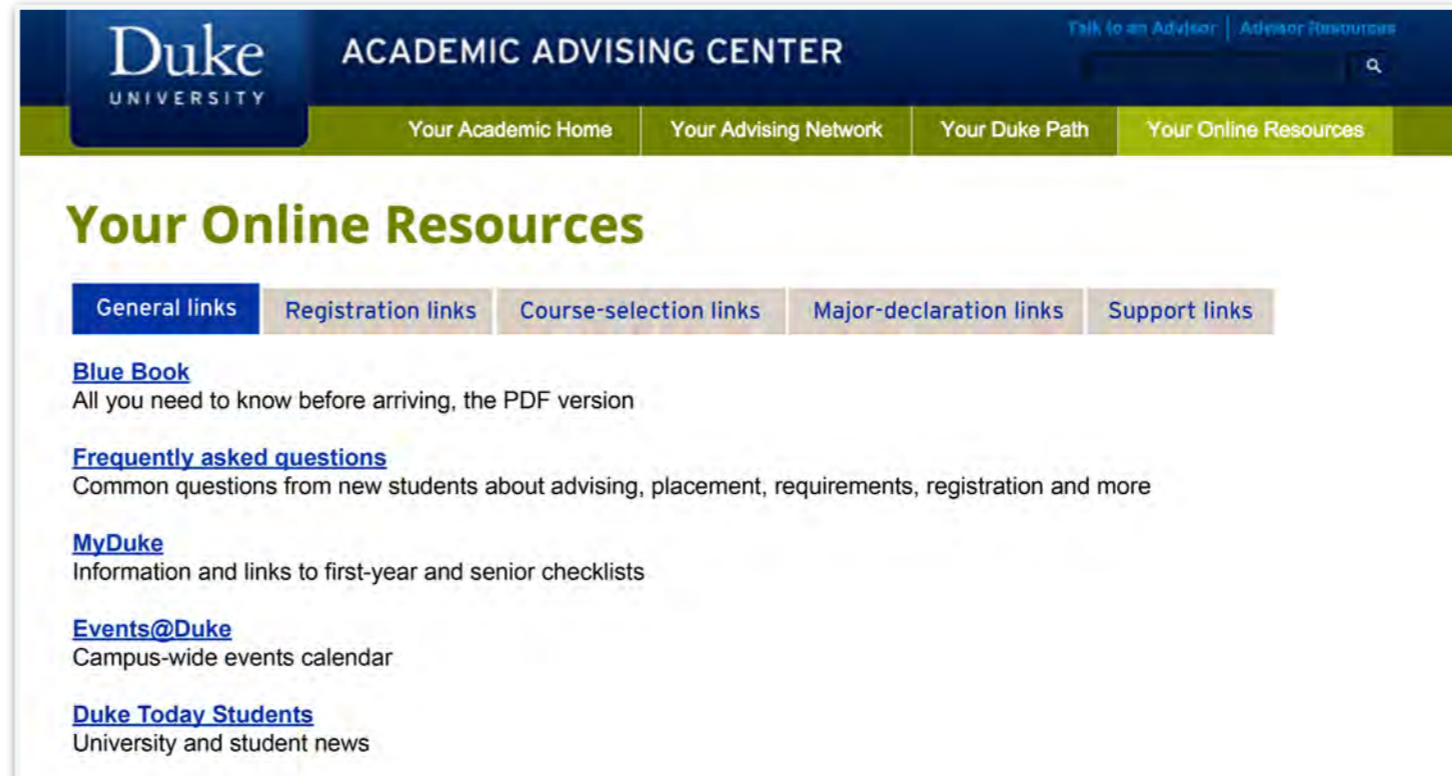
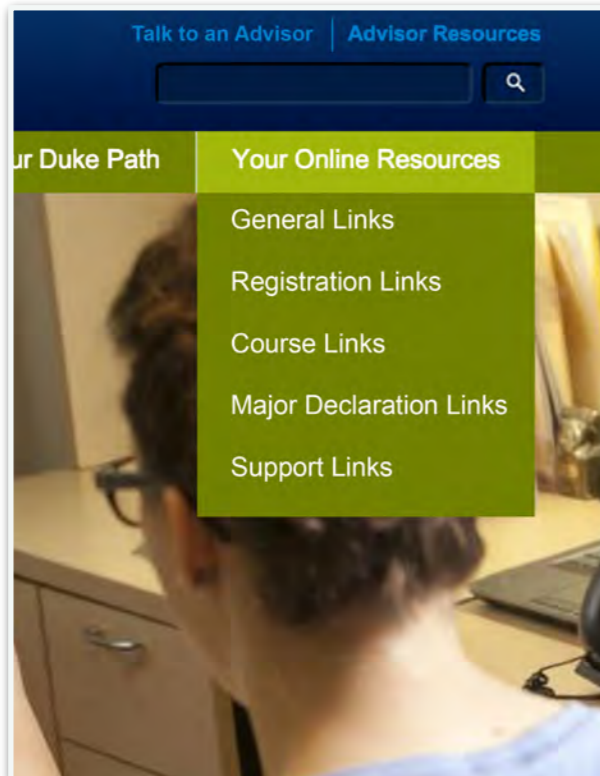
Academic Advisors

Your academic advisor is the first intellectual mentor you meet after

Recommendations

Critical changes

- » RC5. “Your Online Resources” drop-down and tabbed page content



Recommendations

Critical changes

- » RC6. Enhanced scanning and reading with lists, subheadings and graphics
- » RC7. Request that Trinity make tables more mobile-friendly. If not possible, put content on advising site.
- » RC8. Responsive layout for mobile
 - Hamburger menu on persistent header
 - Vertically stacked, “accordion” tabs
 - Larger text

Recommendations

Critical changes



Duke UNIVERSITY ACADEMIC ADVISING CENTER

Menu

Talk to an Advisor | Advisor Resources

Academic Advising at Duke
The Academic Advising Center is the primary academic home for Trinity College students ... [more](#)

Advising Quick Links

- [Support at midterms »](#)
- [Major declaration »](#)
- [Pratt/Trinity transfer »](#)

Your Advising Network
Advisors work together to support you throughout your academic career at Duke. Your network will do more than just help you choose courses to fill ... [more](#)



Select an advisor for details

Academic Advisors
Your academic advisor is the first intellectual mentor you meet after arriving for orientation, and you meet with her or him every semester until you join a major in your sophomore year. Advisors are dedicated faculty and administrators, each of whom is prepared to help you weigh your curricular and co-curricular choices and connect you to faculty who can guide you further. [Read more »](#)

Your Duke Path
Duke offers an unparalleled diversity of academic options in the classroom, across campus, in Durham and around the world. ... [more](#)

you meet with her or him every semester until you join a major in your sophomore year. Advisors are dedicated faculty and administrators, each of whom is prepared to help you weigh your curricular and co-curricular choices and connect you to faculty who can guide you further. [Read more »](#)

Your Duke Path
Duke offers an unparalleled diversity of academic options in the classroom, across campus, in Durham and around the world. ... [more](#)

Welcome!

First steps
Placement
Choosing courses

FIRST YEAR SOPHOMORE YEAR

Choosing a major
Joining a major
Academic Homecoming


Academic Advising Center

Advisor in major
Major Advising
Capstone experience

JUNIOR YEAR SENIOR YEAR

Graduation preparation
What's next?

Their Duke Paths
Their stories are different, but each of these recent Duke graduates achieved the same result: a successful, rewarding undergraduate academic experience.



View more profiles »


Explore Your Interests
Directors of academic engagement (DAEs) meet with you individually to understand your personal academic interests. They work with you to identify opportunities for academic exploration beyond the traditional classroom, specializing in three areas:

Arts & Humanities »


Global & Civic Opportunities »

Natural & Quantitative Sciences »

Opportunities »




Natural & Quantitative Sciences »



[What is a DAE? Watch the video »](#)

Your Peer Advisors
A group of academic leaders on campus, peer advisors work closely with academic deans, ... [more](#)



CONTACT
(919) 684-6217 | advising@duke.edu
Box 90697, Durham, NC 27796

VISIT
East Campus, behind Brown Residence Hall
Monday-Friday, 8 a.m.-5 p.m.

CONNECT

EXPLORE DUKE
[Duke.edu](#) [Trinity](#) [Pratt](#) [Contact](#)

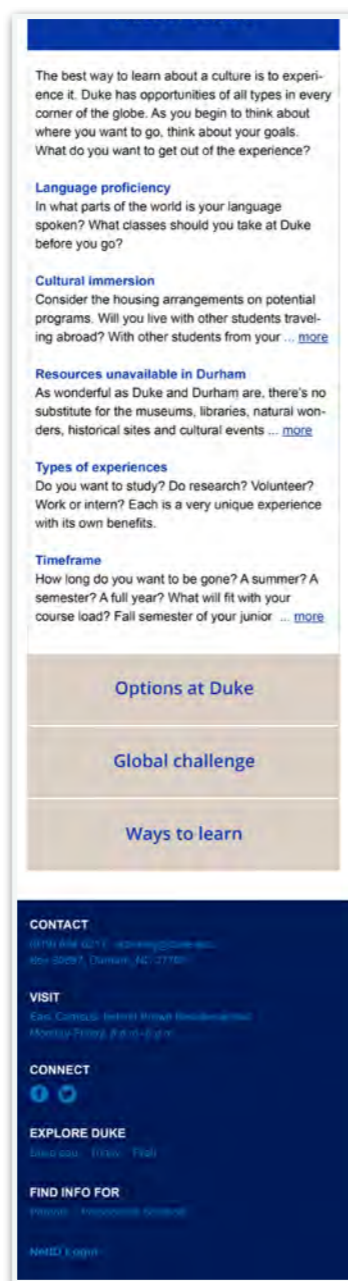
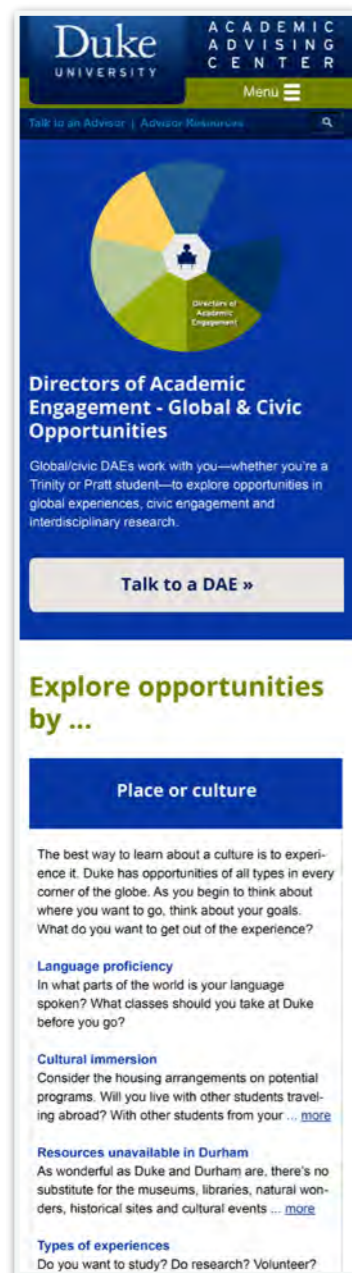
FIND INFO FOR
[Parents](#) [Prospective Students](#)

[NetID Login](#)

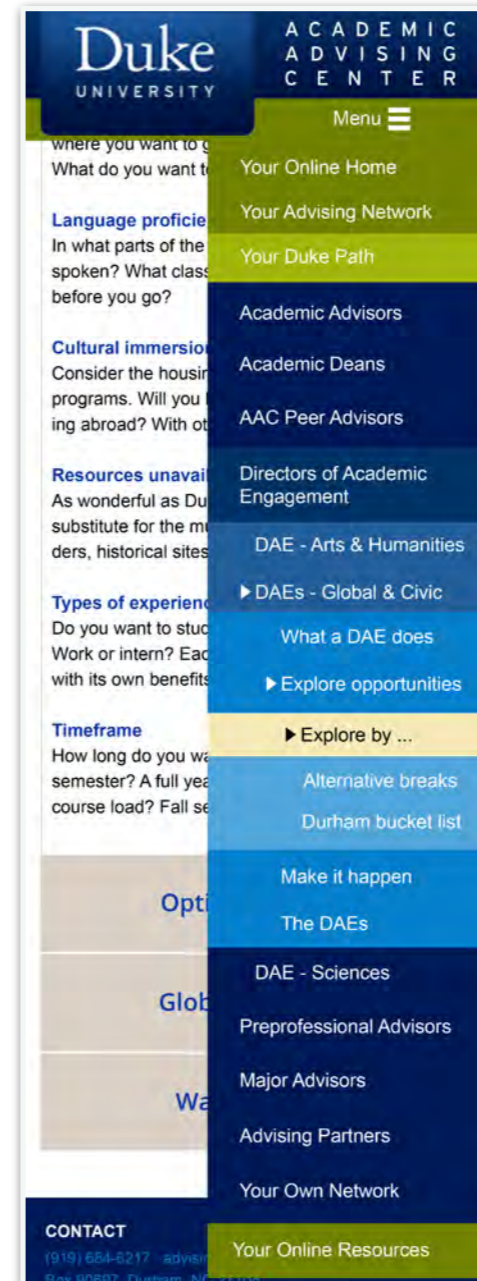
Mobile-friendly home page

Recommendations

Critical changes



Mobile tabs



Mobile menu

Recommendations

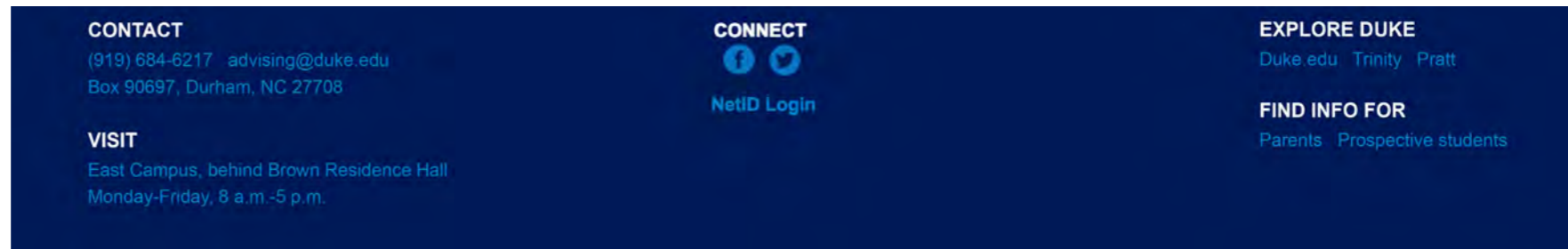
Serious changes

- » RS1. Reconsider subnavigation labels, section titles, page titles for clarity.
- » RS2. Divide “In Your Major” to separate sections for junior and senior years.
- » RC3. Add prominent clarifying sentence to top of “Transfer Students” page, redirecting students interested in Pratt-Trinity transfer.

Recommendations

Serious changes

- » RS4. Add contact information, location hours to footer.



Minor changes

- » RM1. Make the entire top banner (Duke logo and “ACADEMIC ADVISING CENTER” text) link to site home page. Or just eliminate [duke.edu](#) logo link.

Recommendations

Minor changes

- » RM2. Combine “Choosing a major,” “Joining a major,” and “Myths about choosing a major” into single “Major declaration” page.

Welcome to Duke

First Year

► Sophomore Year

Course selection

Academic engagement

► Major declaration

In Your Major

Transfer Students

Engineering Students

Their Duke Paths

Major declaration

By joining a department or program as an undergraduate major, you commit to a community of scholars that includes faculty, graduate students, post-docs, administrators and fellow undergraduates. These relationships will expand your ability to delve into the questions and problems that you find intriguing. The major will also provide a framework for exploring and choosing among opportunities to enhance your Duke education: studying abroad, engaging with the community, mentored research, etc.

Choosing a major | Major myths | When to declare | **How to declare** | Multiple majors, minors, certificates | Changing your major

Follow these steps to declare:

1. Follow the [instructions in this PDF file](#) for completing the Long Range Plan. You will write an essay and list the courses you plan to take to complete the major and other remaining graduation requirements.
2. When you have completed the Long Range Plan, schedule a meeting with your academic advisor, who will review and approve it.
3. After you have both signed the plan, you [submit it \(in person\) to the Academic Advising Center](#). We will make your major declaration effective in ACES and notify your new major department and academic dean.
4. After declaring your major, please take a few moments to respond to [this survey about your academic advising experience](#). Your responses will be held in confidence and will be used by the AAC to enhance the advising experience for students.

Recommendations

Minor changes

- » RM3. Combine the “WRITING 101” and “Seminar” tabs to a single “First-year requirements” tab on the first-year “Course selection” page.
- » RM4. Add a “Learn more” link to the home-page band about peer advising.

Questions

References

- » Feghali, T., Zbib, I., & Hallal, S. (2011). A web-based decision support tool for academic advising. *Journal of Educational Technology & Society*, 14(1), 82-94.
- » Krug, S. (2010). Rocket surgery made easy the do-it-yourself guide to finding and fixing usability problems. Berkeley, CA: New Riders.
- » Krug, S. (2014). Don't make me think, revisited: a common sense approach to Web usability. Berkeley, CA: New Riders.

References

- » Madrigal, D., & McClain, B. (2010, March 8). Do's and don'ts of usability testing. Retrieved from <http://www.uxmatters.com/mt/archives/2010/03/dos-and-donts-of-usability-testing.php>
- » Nielsen, J. (2000, March 3). Why you only need to test with 5 users. Retrieved from <http://www.nngroup.com/articles/why-you-only-need-to-test-with-5-users/>

References

- » Nielsen, J. (2012a, January 4). Usability 101: introduction to usability. Retrieved from <http://www.nngroup.com/articles/usability-101-introduction-to-usability/>
- » Nielsen, J. (2012b, June 4). How many test users in a usability study? Retrieved January 24 from <http://www.nngroup.com/articles/how-many-test-users/>
- » Steele, G. E., & Thurmond, K. C. (2009). Academic advising in a virtual university. *New Directions for Higher Education*, (146), 85-95. doi:10.1002/he.349

APPENDIX C: User Test Script

- Prepare screen-recording software.
- Print out test script and all instruments.
- Open first Chrome browser tab to Google home page (<http://google.com>).
- Open second Chrome browser tab to Duke Academic Advising Center home page (<http://advising.duke.edu>).

Hi, _____. My name is Casey, and I'm going to be walking you through this session today. Before we begin, I have some information for you, and I'm going to read it to make sure that I cover everything.

You probably already have a good idea of why we asked you here, but let me go over it again briefly. I'm asking people to try using a website in order to see whether it works as intended. The session should take about an hour.

The first thing I want to make clear right away is that we're testing the site, not you. You can't do anything wrong here. In fact, this is probably the one place today where you don't have to worry about making mistakes.

As you use the site, I'm going to ask you as much as possible to try to think out loud: to say what you're looking at, what you're trying to do, and what you're thinking. This will be a big help.

Also, please don't worry that you're going to hurt anyone's feelings. The goal of the testing is to improve the site, so I need to hear your honest reactions.

If you have any questions as we go along, just ask them. I may not be able to answer them right away, because I'm interested in how people do when they don't have someone sitting next to them to help. But if you still have any questions when we're

finished, I'll try to answer them then. And if you need to take a break at any point, just let me know.

You will notice that I am using screen-recording software. With your permission, I'm going to record what happens on the screens and our conversation. The recordings will only be used to help me figure out how to improve the site. They will only be used anonymously and only used in reporting the findings of this study. (I will report my findings to a three-person committee here at the university and to staff at the Duke University Academic Advising Center.) The recordings also help me focus on our test, because I don't have to take as many notes.

If you would, I'm going to ask you to sign an informed consent form that indicates you understand why we're doing the test and how the results and recordings will be used.

- Hand the participant the informed consent form and a pen.
- While the participant completes the form, start the screen recorder.

Do you have any questions so far? OK. Before we look at the site, I'd like to collect some background information from you. I have a short questionnaire for you to complete. After you are finished, I will take back the form and record your verbal answers to a few questions. OK?

- Hand the participant the pre-experiment survey.
- When the participant completes the survey, collect it and record the participant's answers to the three questions that follow.

OK. I've got a few questions for you to give me an idea of your background on what we're studying today:

1. What are your academic and extracurricular interests here in college?
2. When it comes time to choose your classes for the upcoming semester, what is your typical process for finding out about potential classes and deciding which ones to take?
3. Are you familiar with academics at Duke University?

OK, great. We're finished with the questions, and we can start looking at things.

- Click to the tab for the Duke Academic Advising Center home page.

First, I'm going to ask you to look at this page and tell me what you make of it: what strikes you about it, whose site you think it is, what you can do here, and what it's for. Just look around and do a little narrative. You can scroll if you want to, but don't click on anything yet.

- Allow this to continue for three or four minutes, at most.

Thanks. Now I'm going to ask you to try doing some specific tasks. I'm going to read each one out loud and give you a printed copy. I'm also going to ask you to do these tasks without using search. I'll learn a lot more about how well the site works that way. And again, as much as possible, it will help if you can try to think out loud as you go along.

- Hand the participant the first scenario, and read it aloud.
- Allow the user to proceed until the task has been completed, you don't feel continuing is producing any value, or the user becomes very frustrated.
- Repeat for each task, or until time runs out.

Thanks. That was very helpful. The final thing I'm going to ask you to do is complete another questionnaire, one that asks for your opinions about certain aspects of the site.

- Hand the participant the post-survey questionnaire and collect it upon completion.

OK. I have a few more questions about your experience using the site:

1. What was the most useful feature of the site and why?
2. What part was most difficult to navigate and why?
3. What part was easiest to navigate and why?
4. Would you use this site if you were a Duke student?
5. What would you use it for?

OK. That's all I need from you. Do you have any questions from me, now that we're finished?

- Stop the screen recorder.
- Thanks the participant and escort her/him out.

APPENDIX D: Informed Consent Form

Casey Hart, a graduate student at the UNC School of Media and Journalism, is conducting a usability study to evaluate the design of the Duke University Academic Advising Center website. This study involves research intended to contribute to the improvement of the website and provide much-needed information for other colleges and universities attempting to convey similar information on their sites.

Your participation in this study will last a maximum of one hour and presents no reasonably foreseeable risks to you.

Procedures:

As a subject you will be asked to:

- 1.) Fill out a pre-experiment questionnaire.
- 2.) Be observed and have your screen recorded as you explore the website home page.
- 3.) Be observed and have your screen recorded as you complete a series of tasks on the site.
- 4.) Complete post-experiment questionnaire.

Confidentiality:

Participation in this usability study is voluntary. All identifying information will remain strictly confidential. The descriptions, recordings, and findings may be used to compile a report about the site's effectiveness. However, at no time will your name or any other identification be used. You are at liberty to withdraw your consent to the experiment and discontinue participation at any time without penalty or loss of benefits to which you are otherwise entitled.

If you have any questions about this research after today, please contact Casey Hart at caseyhart@unc.edu or 617-894-8322. If you have questions concerning the rights of human research subjects, please contact The UNC-Chapel Hill Institutional Review Board at 919-966-3113.

I have read and understood the information on this form and had all of my questions answered.

Participant's signature

Date

Test administrator's signature

Date

IRB study 16-0540

Form version date: March 8, 2016

APPENDIX E: Pre-experiment Questionnaire

Age: _____

Gender:

- Male
- Female
- Self-identify: _____

Race (check all that apply):

- White
- Black, African-American
- American Indian
- Hispanic
- Asian or Pacific Islander
- Other: _____

Undergraduate year:

- First
- Sophomore
- Junior
- Senior

Undergraduate major:

- Undecided
- Intended but undeclared: _____
- Declared: _____

Most-used device for browsing websites:

- Desktop/laptop
- Mobile
- Equal use of desktop/laptop and mobile

APPENDIX F: User tasks

Task 1

Get as far as you can* in the process of opening an email to your adviser. Declare aloud when you have completed the task.

**Actually opening an email requires logging in with Duke credentials.*

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 2

Answer this question: What is the deadline for most sophomores to declare a major in 2015-16?

Answer: _____

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 3

Go to the page to make an appointment to explore your options for study abroad and other opportunities. Declare aloud when you have completed this task.

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 4

Answer this question: What two course requirements must all students complete during their first year?

Answer: _____

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 5

Answer this question: What is the name of a specific person whom you can contact if you are considering majoring in Asian and Middle Eastern studies and want more information?

Answer: _____

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 6

Go to the page listing all graduation requirements. Declare aloud when you have completed the task.

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 7

Answer this question: Whom should you contact if you are experiencing a family emergency or other extenuating circumstance that impacts your ability to complete your course work? I'm looking for a position, not a specific name.

Answer: _____

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 8

Answer this question: You are an incoming first-year considering taking an economics course first semester. Based on the following Advanced Placement test scores, for which course should you register?

AP Microeconomics: 5
AP Macroeconomics: 4
AP Calculus AB: 3
AP Calculus BC: did not take

Answer: _____

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 9

You are an engineering student but have decided you would like to major in English instead. Get as far as you can* in the process of transferring to the college of arts and sciences.

**Actually applying requires logging in with Duke credentials.*

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 10

Answer this question: Does Duke offer a major in education?

Answer: _____

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 11

Answer this question: You are thinking about majoring in biology. What is the name of a specific fellow student who could talk to you about his experience studying that subject at Duke?

Answer: _____

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

Task 12

Answer this question: When and where can a student visit the Academic Advising Center?

Answer: _____

Task success

- Completed with no problems
- Completed with minor problems
- Completed with serious problems
- Not completed

Observations and user comments:

APPENDIX G: Post-experiment Questionnaire

Rate your overall impression about the following elements of the website.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree
5 = Strongly Agree

The site's design and photos are attractive.

Strongly disagree 1 2 3 4 5 Strongly agree

Information on the site is easy to find.

Strongly disagree 1 2 3 4 5 Strongly agree

Information on the site is easy to understand.

Strongly disagree 1 2 3 4 5 Strongly agree

The site's navigation is easy to use.

Strongly disagree 1 2 3 4 5 Strongly agree

The site is designed with me in mind.

Strongly disagree 1 2 3 4 5 Strongly agree