The image features a stylized globe on the left side, partially obscured by a glowing blue grid of lines that represent a network or data structure. The globe shows continents and oceans in muted colors. The background is a dark blue gradient with a prominent glowing blue arc that curves across the middle of the frame. The text is positioned on the right side of the image.

# **Portfolio of Scientific and Technical Communication**

**Joshua Stuempges**

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# Joshua W. Stuempges

Email: [jwstuemp@mtu.edu](mailto:jwstuemp@mtu.edu)

Phone: 906-231-4126

109 East Montezuma Ave., Houghton, MI, 49931

Seeking Full-Time Employment

Technical Comm. Senior, Michigan Tech

Josh Stuempges on LinkedIn

## ACADEMICS

Graduating December 2015 with BS in Scientific and Technical Communication

2.77 Departmental GPA, 2.57 Cumulative GPA

Studied abroad in Estonia, Summer 2013

## USER SUCCESS DIRECTOR AT HANDSHAKE

**Managed usability, marketing, and user support for a software startup** **Feb 2014 – Dec 2014**

- Produced and maintained 234 online support articles and videos
- Consulted on usability design for the development team
- Designed and wrote marketing materials for multiple audiences
- Trained clients and coworkers on product operation
- Aided clients through online and telephone product support
- Continued providing temporary quality assurance for brief contracts

## ACADEMIC PROJECTS

**Usability testing for an Estonian entrepreneur** **Summer 2013**

- Designed usability testing protocols
- Tested website usability for an international market
- Analyzed results and presented recommendation report to clients

**CrowdHydrology app for Dr. Christopher Lowry & USGS** **Spring 2014**

- Authored promotional “White Paper” materials
- Conducted usability testing and design refinements
- Designed and wrote support features and documentation

## SOFTWARE AND TECHNICAL SKILLS

Adobe Design Suite

Basic Adobe Dreamweaver

Microsoft Office Suite

Basic Java Coding

Morae Usability Testing

Basic VBA Coding

## ORGANIZATIONS AND ACTIVITIES

Gamer’s Anonymous student group, advertising officer

2013 – present

UNDER\_WIRE student publication, contributor

2013 – 2014

Troupe, student improvisational theater group

2008 – 2011

25 additional theater productions for various organizations

2004 – 2013

## WORK EXPERIENCE

Handshake/Stryder Corp

User Success Director, Houghton MI, Feb 2014 – Dec 2014

Taco Bell

Cashier/Dishwasher, Houghton MI, Fall 2010 – Summer 2013

Issues and Answers

Conducted Phone Surveys, Houghton, MI, Sep 2010 – Nov 2010

# Documentation

## Clarity, Information, and Helpfulness

I've gained most of my communication experience working with Handshake, a software start-up company, for about a year. At that point Handshake was a startup, run by the three founding members and about half a dozen "interns". As their only technical writer I took care of documentation and helped out with marketing and training.

Earlier coursework prepared me for the role, but the challenge of producing over two hundred support articles and videos, keeping them updated with a constantly-changing product, and training people of all technical abilities in their use taught me even more. I worked closely with the development team and my documentation and feedback was the last stage in our development cycle.

The support site I originally worked on is no longer being used; in the years since I was with them both Handshake's product and the site they use to host their support articles have changed. But while that database may be inaccessible for this portfolio I still have some examples of support documents we sent out to our users, and they're displayed in this section.

I've also included a sample of one of my first technical documentation projects. The User Services Guide project was an important introduction to technical writing, particularly because it had to be written with both a technical and lay audience in mind.

## Handshake Employer Introduction

Handshake is an online platform that brings together college students, employers, and college administrators. It's a lot like LinkedIn but aimed at college students and the institution's Career Services department sets up events and pairs students with employers.

When our client schools switched over to Handshake they had to bring all of their students, staff, and employers up to date as well. The following introduction was used to get employers started on the new system. It had to be written for a very general audience since there was no guarantee that the end users would be digital natives.

The actual document was handed out in .pdf form. I chose to use the landscape orientation for the introduction because that's how computer screens are set up. Using landscape orientation allowed me to display complete screenshots of the Handshake product during each step of the employer set-up process. The pages I've included have been scaled down to fit with this portfolio's layout, but the actual document had standard 8.5" x 11" pages.

# Employer Basics

Basic How-Tos for Handshake



## How To Use This Guide

Handshake is a bit different than the platforms you may be used to. This guide is intended to get you up and running quickly. There are many more advanced features that this guide does not cover. For more information check out [support.joinhandshake.com](http://support.joinhandshake.com) under the Employer section.

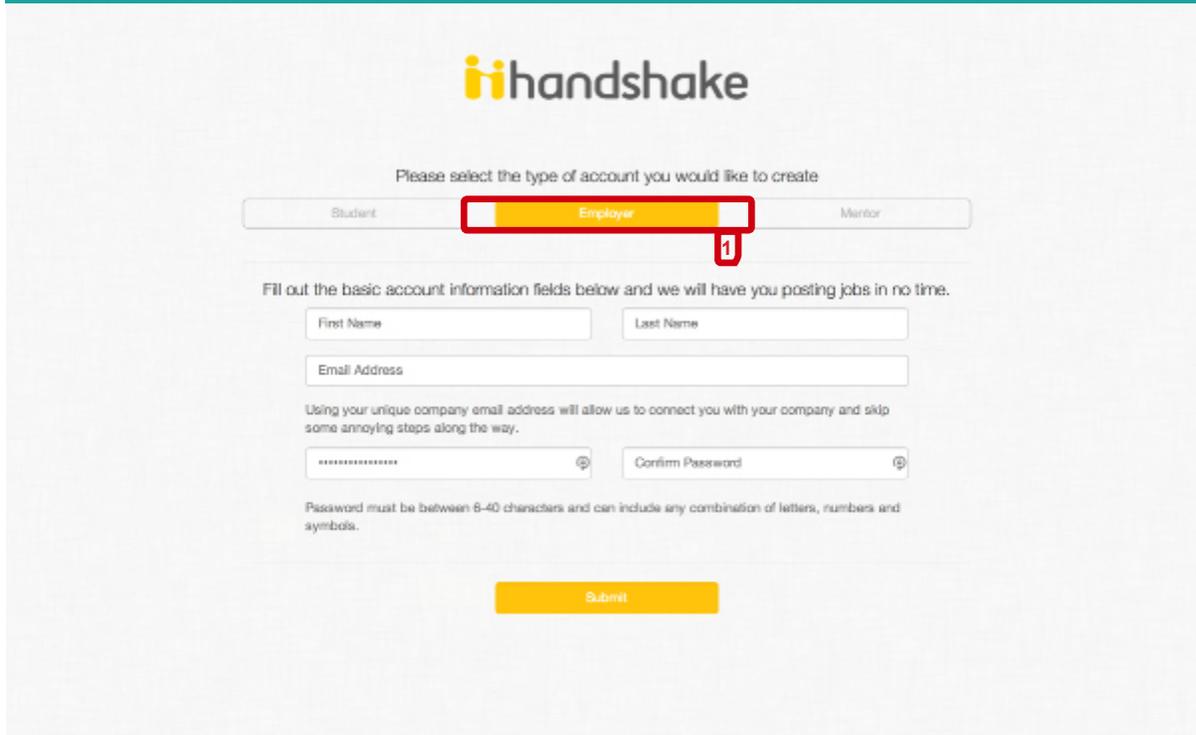
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## Getting Started: Registering

3

Select the Employer account type [1]. Enter your information, using your company email address if you have one. Choose a password and click 'Submit'.

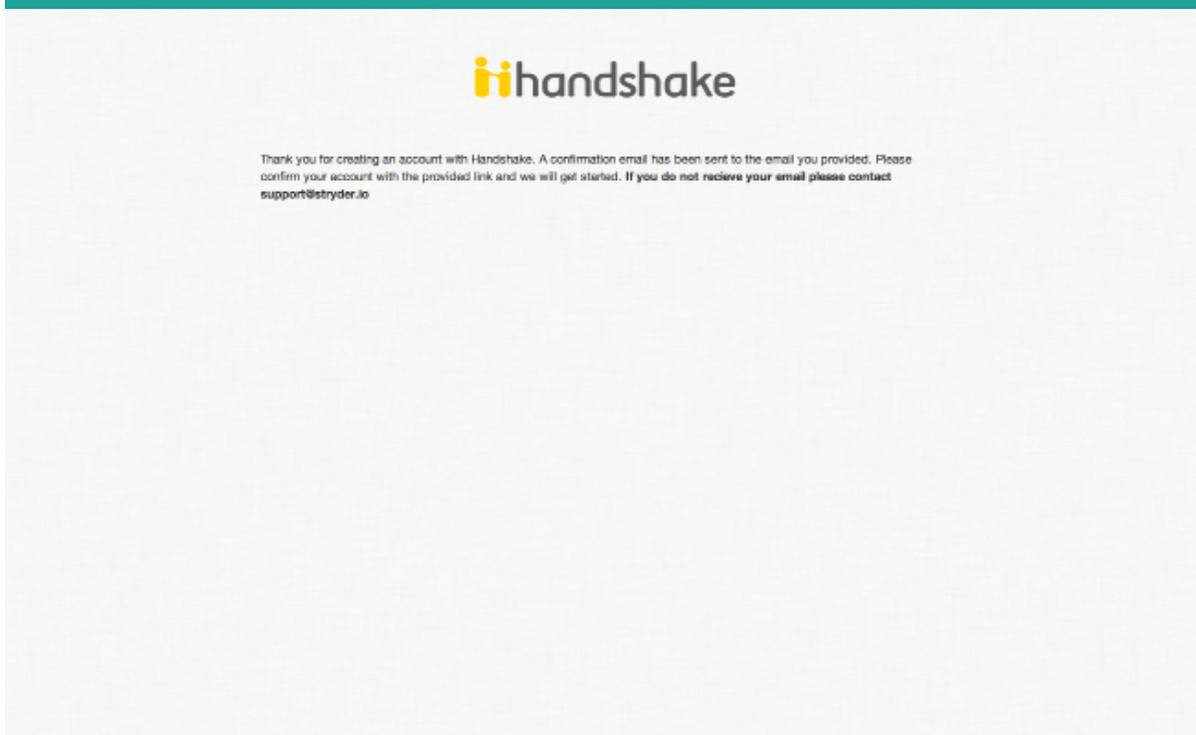


The image shows a registration form for Handshake. At the top is the Handshake logo. Below it is a heading: "Please select the type of account you would like to create". There are three radio buttons: "Student", "Employer", and "Monitor". The "Employer" radio button is selected and highlighted with a red box and a red number "1" below it. Below the radio buttons is a heading: "Fill out the basic account information fields below and we will have you posting jobs in no time." There are four input fields: "First Name", "Last Name", "Email Address", and "Password". The "Password" field is masked with asterisks. Below the "Password" field is a "Confirm Password" field, also masked. Below these fields is a note: "Using your unique company email address will allow us to connect you with your company and skip some annoying steps along the way." Below the note is a "Submit" button.

## Getting Started: Registering

4

You will be directed to this page. Please check your email for a confirmation link.

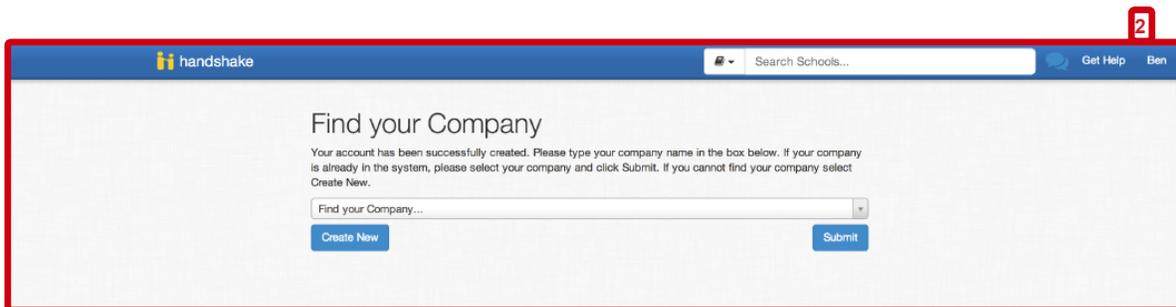
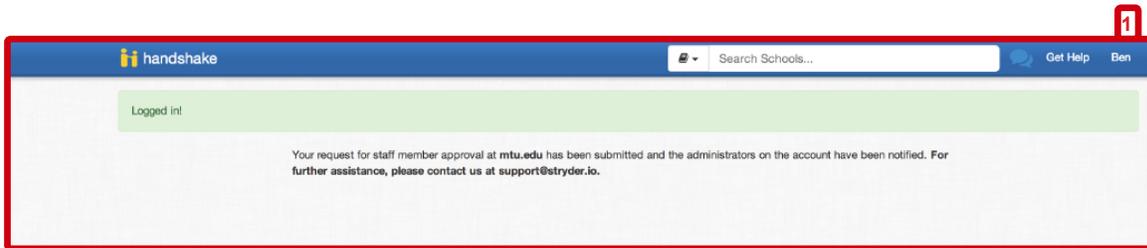


The image shows a confirmation page for Handshake. At the top is the Handshake logo. Below it is a heading: "Thank you for creating an account with Handshake. A confirmation email has been sent to the email you provided. Please confirm your account with the provided link and we will get started. If you do not receive your email please contact support@stryder.io".

# Getting Started: Registering

5

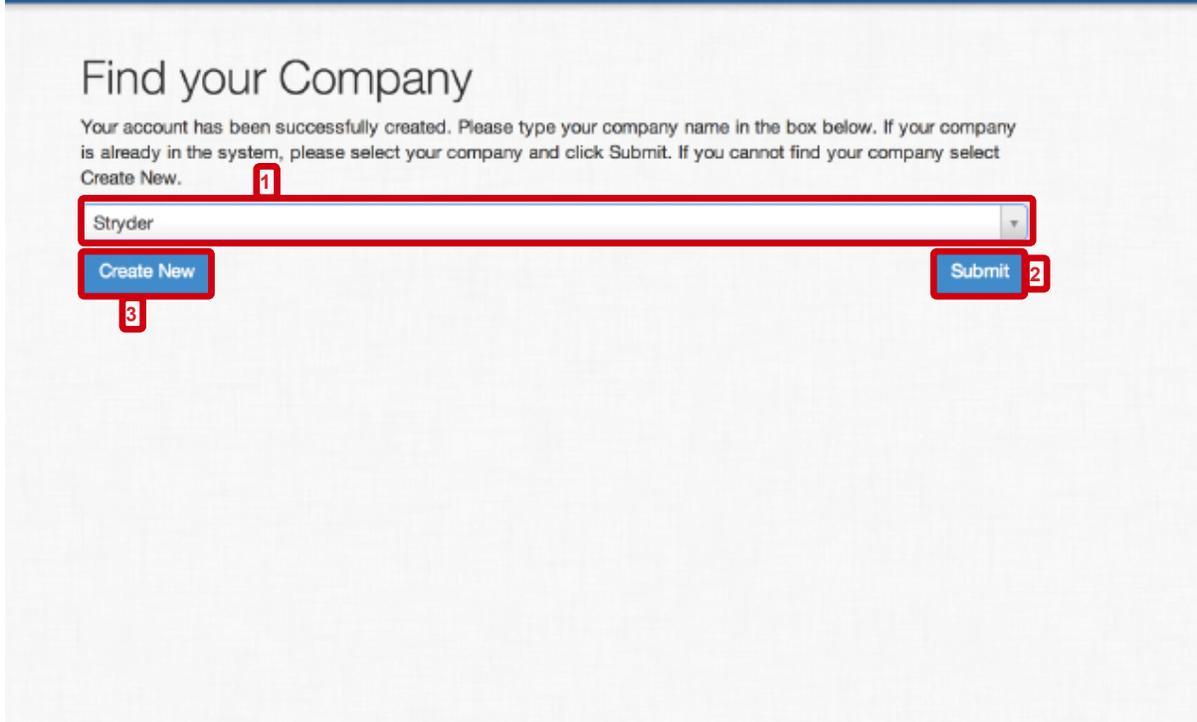
We will attempt to automatically determine your company. If it does not exist on Handshake yet, or we cannot determine it, you will see the top screen [1]. If we can determine it you will see the bottom screen [2].



# Getting Started: Finding a Company

6

If we were unable to automatically find your company you will need to search for or create a new company. Click the box to search for your company by name [1]. Find your company and click Submit [2]. If you can't find your company, click Create New [3]. If you found your company or we found it for you automatically (on the previous page), skip to page 8 of this guide.



## Getting Started: Creating a Company

7

If your company is not already on Handshake, you can create a new company in three quick steps. After clicking "Create New" on the previous page in this guide, complete three quick steps. *Skip to page 9 of this guide after creating your company.*

The image shows a screenshot of the Handshake website. At the top, there is a navigation bar with the Handshake logo, a search bar, and a 'Get Help' button. Below the navigation bar, a sidebar on the left contains links for 'Home', 'John Doe', 'John Doe Corp', 'Search', 'Jobs', and 'Applications'. The main content area displays a 'Welcome to Handshake' message with instructions on how to create a company page. A red square with the number '1' is positioned to the right of the message. Below the message, there is a 'Get Started!' button. The form for creating a company is divided into two columns. The left column contains fields for 'Company name', 'Description', 'Institution size', 'Institution type', and 'Industry'. Below these fields are two image upload buttons labeled 'logo' and 'branding image'. A 'Next >' button is at the bottom of the left column. The right column contains fields for 'Website', 'Address', 'Location', 'Zipcode', 'Phone', and 'Email'. Below these fields are two buttons: '< Previous' and 'Finish'. A red square with the number '2' is located at the bottom left of the form, and a red square with the number '3' is at the bottom right.

## Getting Started: Getting Approved

8

If we were able to automatically determine your company, or you searched and found it you will need to be verified. Handshake members at your company will receive an email they can click, or you can contact Handshake support to be manually verified. Once you have been verified, continue to the next page.

The image shows a screenshot of the Handshake website. At the top, there is a navigation bar with the Handshake logo, a search bar, and a 'Get Help' button. Below the navigation bar, a green banner displays the text 'Logged in!'. Below the banner, a notification message states: 'Your request for staff member approval at mtu.edu has been submitted and the administrators on the account have been notified. For further assistance, please contact us at support@stryder.io.' The background of the page is a light gray grid pattern.

## Handshake Feature List

Handshake is an online platform that brings together college students, employers, and college administrators. It's a lot like LinkedIn but aimed at college students and the institution's Career Services department sets up events and pairs students with employers.

New universities were being brought on at a rapid pace during my time at Handshake, and I was in charge of producing documentation for them. This feature list was intended both as a marketing tool and a detailed overview to administrators who were considering switching to Handshake.

# handshake features



# Handshake Features

## Universal

- Search
- Messaging
- Note Taking
- Home Page
- Events
- Notifications
- Outcomes
- Calendars
- Interviews
- Jobs
- Applications
- Attachments

## Administrators and Employers

- Labels
- Add & Manage Staff
- Approvals
- Career Fairs

## Administrators and Students

- Surveys
- Mentorships
- Career Plans
- Document and Profile Review
- Appointments

## Administrators

- School Profile
- Staff Profile
- Rooms
- Analytics
- Management Tools

## Students

- Student Profiles
- Student Journals

## Employers

- Schools
- Company Profiles
- Staff Profiles
- Contacts

# Administrators

## School Profile

- Setup
- Description
- History
- Photos
- Maximum Applications
- Student Reviews

## Staff Profiles

- Creating
- Roles
- Updating

## Rooms

- Adding Buildings
- Adding Rooms
- Room Schedules

## Analytics

- Analytics Page
- Reports
- Page Data

## Management Tools

- View As Student
- Editing Privileges
- Blocking Students

# School Profile

## Setup

School profiles are set up as a part of the integration and implementation service, but filling out the details can be done yourself if you would rather. School staff members with the “Administrator” role have permission to edit school profile information.

## Description

This field tells a little bit about your institution. It should describe the school’s ethos and focus.

## History

School profiles include a place to describe the history of the institution.

## Photos

School profiles can have two images, a logo and a branding image (the branding image is used as a banner at the top of your school profile page).

## Maximum Applications

Administration can limit the maximum number of applications students can have active at a time. Handshake makes it very easy for students to apply for positions, so in some cases employers could be overwhelmed by applications from students who figure they should try their chances applying for every job on Handshake.

## Student Review

Administration can also choose to make student profiles invisible and inactive until they have passed a review and been approved. The same can be done for student career documents, like resumes, cover letters, and transcripts.

## Custom Fields

The custom fields of Mentor Expertise, Mentor Extra Questions, and Appointment Types are set from the school profile edit page.

# Staff Profiles

## Creating

School staff with the “Administrator” role can add staff members to the school. This requires a username and password. Other information, such as a bio and their profile picture, can either be filled in here or by the staff member at a later date.

## Roles

Staff members can have a variety of roles. These roles are required to access different site features.

## Updating

Staff profiles can be updated by that staff member or by another staff member with the “Manage Staff” role.

## External Links

School staff members have a place on their profile to host external links. These could be links to a LinkedIn profile, personal blog, news service, or any other website on the internet.

# Rooms

## Adding Buildings

Staff members can add buildings to their school. Buildings can include rooms, and have an address and possibly a picture of the building's exterior to help visitors recognize it.

## Adding Rooms

Rooms can be added inside of buildings. They have maximum occupancies, descriptions, photos, and names.

## Room Schedules

Room schedules are visible to any staff member who goes to a room's page. They include any events or interviews taking place in that location.

# Analytics

## Analytics Page

The analytics page provides a quick overview of site traffic and data. It includes quick statistics on the number of logins, job postings, applications, and interviews in the last seven days. It also displays graphs of student applications, student logins, and job postings over time.

## Reports

Reports can be generated on many aspects of Handshake data. These reports are saved each time they're generated and labeled with the time and date. They can be downloaded in CSV form and opened in Excel, exported through an RSS feed, or exported via an API to other sites. Report categories currently include: Employers, students, events, interviews, surveys, mass emails, career plans, appointments, mentorships, and outcomes.

## Page Data

Certain pages on Handshake provide feedback in the form of graphs and charts. The "Breakdown" view on an event shows pie charts of students by major and year, for example, as well as a bar graph representing organizations and skills present among the attendees. The confirmation pages of surveys and mass emails provide analytics on the recipients. These are only a few examples of the analytics embedded in Handshake; more exist attached to other features.

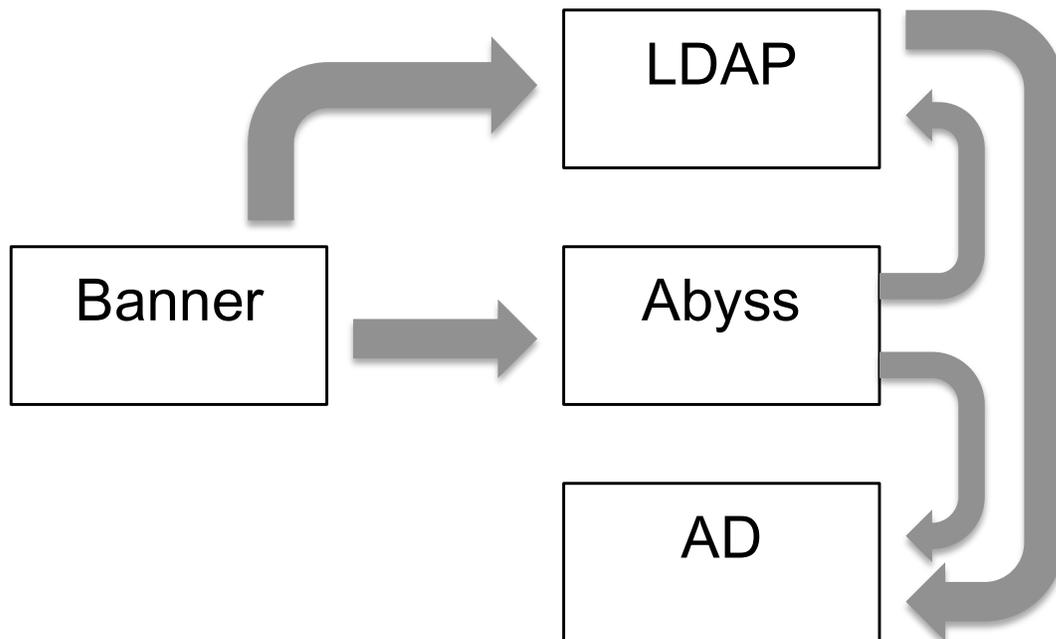
## User Services Help Guide: Guest Access

Michigan Tech's user services department is effectively the university's IT support group. If you're a student or professor on campus, you call user services when you have a problem with your computer.

At the time of this project, the department lacked training materials for new students hired to take care of complaints. One of my first classes as a Scientific and Technical Communications student had us tackle this problem, setting us up in groups of four and introducing us to subject matter experts from user services.

This guide is an odd mix of help documentation and instruction writing. The document has two audiences: the new student hires, who will be using this guide as a reference for IT problems, and the people they're helping, who will be following our instructions second-hand over the phone or email.

While the guide as a whole was a group project the following pages were my responsibility, so all of the content is my own.



Banner is the most detailed source of user information. That information is synchronized nightly with Abyss and LDAP. Abyss takes Banner's information about each user and assigns them a list of tags representing their access privileges. LDAP also gets its information from Banner, but instead of looking at what access groups a user fits in, it mostly checks contact information. LDAP can also check an account's Abyss tags to update its information on that user.

AD is the system that identifies each individual machine and what is needed to log into it. When a user tries to log in, the AD system checks the user's Abyss tags and LDAP information to see if that user meets that computer's AD requirements. If they do, then log-in is successful.

# How to Assist Users With Guest Access Issues

---

## Summary

A default guest account has access to wireless, and nothing else. However, User Services can change guest accounts via [idm.mtu.edu](http://idm.mtu.edu), adding various permissions to their account. This is usually done for users like visiting researchers and research assistants, who aren't strongly affiliated with the college but still need access to various labs and file shares. Each guest needs their identity confirmed in some way before gaining increased access, and they need to be sponsored by a faculty member with authority over whatever they're being given access to. For example, if a visiting researcher from India needs to be able to share files with a lab in the ChemSci building, the faculty member in charge of the lab or research project would probably contact user services and ask to set up guest access for the researcher.

## Instructions

---

1. Ask the user if they are the guest and **cannot log in**, or if they wish to **set up guest access** for another person or themselves.

**If for SET UP GUEST ACCESS**, continue to section 2.

**If they CANNOT LOG IN**, refer to page 3 of this document. If the issue is not resolved, continue to "Problems Specific to Guest Log-In" in the troubleshooting section after these instructions. Keep in mind that a guest won't have a student bill or be enrolled, so skip those diagnostic steps and continue through the other ones.

2. Ask the user if they wish to set up **parental access** to their banner services, or grant **another person** access to campus networks.

**If for PARENTAL ACCESS**, suggest they review the instructions on <http://www.mtu.edu/registrar/parents-family/access/setup/> and double-check with their parents that they are using the correct username/password. Also inform them that parental access is handled by EAS in the administration building. Their website is

<http://www.admin.mtu.edu/itad/> and lists all contact information for their staff.

**If for ANOTHER PERSON**, continue to “setting up guest accounts” in the troubleshooting section.

## Troubleshooting

---

### Problems Specific to Guest Log-ins

1. Ask the guest for their username and the computer group or lab they are trying to log in to. Using IDM.mtu.edu, go to the Inquire tool and look up their profile to see what permissions they have. Check the section labeled “Domain Information”. Do they have log-in granting domains active, such as coe-core?

**If YES**, forward the issue to Henry King.

**If NO**, they lack the correct permissions. Continue to step 2.

2. Ask the user if a recent event would have granted them more access. For example, if they recently filled out admin employment paperwork, or joined a new project.

**If YES**, then Abyss might not have synced with Banner yet. A faculty member has to update Banner to show the user’s new status. Abyss automatically syncs with Banner every night, and updates user permissions. If their problem is not fixed overnight, then they may need to request that someone in Admin update their information. If the user is both insistent and important, you can refer them to a member of the IDM infrastructure team, who can manually synchronize the user’s Abyss and Banner information.

**If NO**, they are not supposed to have access. Inform them that they need to contact whoever is in charge of the program, lab, etc. and ask to be granted access.

### Setting up guest accounts

1. Do you have the permissions to create guest accounts?

**If YES**, continue to step 2.

**If NO**, pass the ticket on to either another user services call taker like yourself who does have permission, or pass the ticket to your System

Administrator. In the future, consider asking your System Administrator to grant you permission to create guest accounts.

2. Is the guest access for the user, or are they sponsoring the guest?

**If USER IS GUEST**, ask for the contact information of the faculty member that is sponsoring their guest access. Confirm that the guest was given permission before you complete the guest account. Continue to step 3.

**If SPONSORING GUEST**, continue to step 3.

3. Set up a face-to-face meeting with the **GUEST** to input their information. The guest must bring a valid driver's license, passport, or travel/student visa. Were you able to set up a meeting?

**If YES**, during the meeting log on to login.mtu.edu and use the Create Guest Account tool. Enter all the guest's information and create the account. Then pass the ticket on to a member of the IDM infrastructure team for them to grant the guest access to the domains they need. *(Note: fill in the entry "local phone number" with any non-international phone number that will reach the guest. If the guest does not have a U.S. phone number, you may use their sponsor's number.)*

**If NO**, then pass the ticket on to the System Administrator.

# Marketing

## Analysis, Strategy, and Rhetoric

Marketing is necessary to get any product or idea off the ground and into our society. Regardless of a project's merits, it will never gain popular buy-in without some amount of marketing.

To me, good marketing means analysis, strategy, and rhetoric. You must understand your product and potential markets, come up with a strategy for fitting them together, and have the rhetorical skill to make a successful pitch.

I've done marketing for student organizations, school projects, and a technology start-up company named Handshake. My experience has shown me that marketing is one of the most complex tasks in technical communication. The analysis and strategy stages require thorough knowledge of the product and users, and with Handshake I also collaborated closely with the more business-minded founders who had the final say on marketing decisions. When it comes to actually producing the marketing materials I've generally worked closely with a graphic designer while I focused on the textual content.

This section contains a marketing white paper and two samples of marketing materials I helped developed during my time at Handshake. The Handshake materials are the product of myself, a graphic designer, and Handshake's business leadership taking an editorial role. The white paper is a solo effort done as part of a group project where I collaborated with programming students and a geology professor from the University of New York at Buffalo.

## Handshake Email Brochure

Handshake is an online platform that brings together college students, employers, and college administrators. It's a lot like LinkedIn but aimed at college students, and the institution's Career Services department sets up events and pairs students with employers.

I joined the Handshake team shortly before it began pitching itself to universities. Over the year I was with them the company went from zero schools to over a dozens, and a lot of that expansion had to do with aggressive marketing. Another major product in the Career Services Management (CSM) field went under that spring, and Handshake took the opportunity to pitch itself to any university that was suddenly in the market for a new CSM platform.

In a few months we were live at eight schools and in negotiations with a dozen more, and during this time we were constantly sending our pitches and information to new potential customers. This email brochure was one of the materials we would frequently use during sales pitches and conferences with new universities.

This brochure was a collaborative effort between myself, one of the company founders closely involved in sales, and a graphic designer. I wrote most of the content of this brochure but can't claim credit for the graphic design. The founder would give myself and the graphic designer instructions on what he wanted included and revisions he wanted to see when presented with each draft.

# handshake

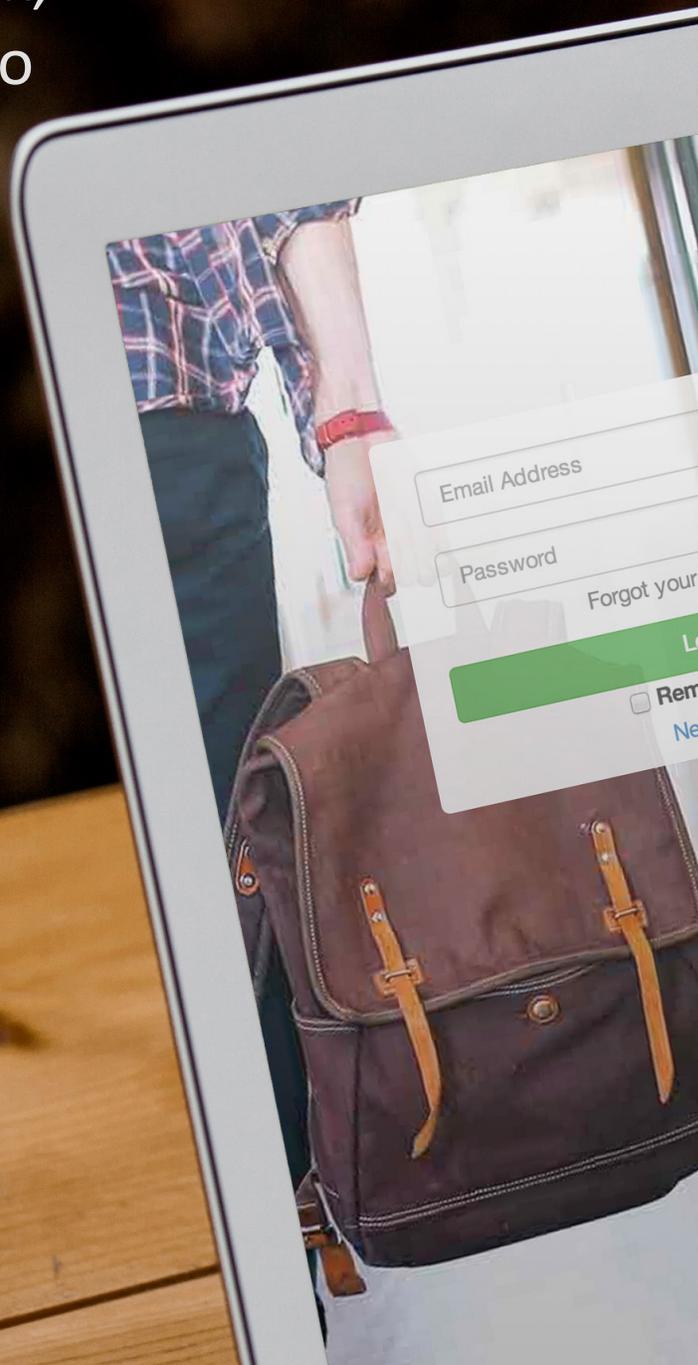
Redefining the way universities empower students to launch their dream careers.

“If you can use Facebook,  
you are overqualified to  
use Handshake.”

“After the first five minutes, I wished our  
university utilized Handshake for the job search  
I conducted two weeks ago.”



James, Economics & Physics, UC Berkeley



   /joinhandshake

# Key Features of Handshake

## Power In Simplicity

Handshake is all about usability. From the beginning it was designed with each user's needs in mind. Handshake's interface is clean, intuitive and easy to navigate. This allows you to focus on what is truly important.

## Mobile

Handshake was built with mobile use in mind, giving you the tools you need whenever and wherever you are. Handshake takes finding your dream job beyond the desktop.

## Employer Contact CRM

Build key relationships; find and target the right contacts. Filter, search, and sort the employer database by "my contacts," contact type, job/event history, last login date and more.

## Modern Mass Emailing

Showcase the information that matters. Show off your team, events and career fairs, upcoming student workshops, key dates and statistics, and convey the information you want to both audiences.

## Improved On Campus Recruiting

On campus recruiting is a core part of university career services. Effectively plan and carry out interviewing on campus with Handshake.

## Increase Student Adoption

To reach students, we utilize the communication channels that they pay attention to in order to offer personalized notifications, realtime feedback, and more.

## Messaging

Communicate easily with recruiters, alumni, groups, and your universities career service center staff with built-in messaging.

## Easy Event Management

Easily manage events on campus, invite targeted students, send weekly event digests, sync with your calendar and more using Handshake's event management.

## Smarter Search

Type what you are looking for into the search box, and you will see a comprehensive page of results that pulls content from all across Handshake including jobs, events, companies, interviews and more.

## Fresh Feeds

Adding value the minute you log in, learn about the career related information that matters to you. The feed displays the most interesting and recent activity taking place in your network.

## Simplified Job Postings

Easily manage full-time employment, internships, cooperative education, student employment, volunteer service learning, federal work-study, alumni employment and more from one, web-based system.

## Analytics & Reporting

Handshake helps you turn rich, career services data into meaningful insights and supports powerful report generation, all in an interactive and easy to use report builder.

## Alumni Management

Effectively manage alumni programs as well as target and maintain relationships with alumni through a modern interface. Send engaging HTML5 e-mail/newsletter blasts.

## Smart Suggestions

Stop browsing irrelevant information, and let us provide you with recommendations. See suggested jobs, events and companies based on your profile.

## Open API

We make "talking" with other software programs easy. Open data export options and API access to all data in the system means no vendor lock-in.

## Cloud & Security

Handshake is always up-to-date with the latest features, bug fixes and security enhancements.

# Frequently Asked Questions

**Q: Will Handshake really boost student engagement?**

A: Absolutely! Handshake was built by students for students. We've done exhaustive usability testing to ensure that students from a variety of different fields and backgrounds are engaged, in the way they want to be engaged.

**Q: Does Handshake work on mobile?**

A: Handshake was built for mobile from day one. Every feature was customized for an optimal experience for students on the go. We currently have a native iOS application and an Android app that is coming soon.

**Q: Is Handshake easy for me and my IT staff to implement at my school?**

A: Engineered to be flexible and work with a variety of data systems, Handshake typically takes less than two weeks to roll out. Our robust set of training materials and understanding coaches can bring any staff up to speed quickly.

**Q: Is Handshake ready for a full deployment?**

A: We have met with over 50 career development centers in the Midwest, and we've built the application with their needs in mind. We are confident that we offer (and will continue to offer) the vital features you, your team, and students could ever need for a successful experience.

## Built By Students, For Students

Handshake is a smart and engaging career service platform designed by students for students. It gives administrators, students, and employers the tools they need to help students develop professionally and launch their careers.

In the past three years, Handshake has come to life. Opinions and insights from hundreds of students, over 35 career service centers, and dozens of employers has lead to the creation of a platform that redefines the career development space.

**We would love to continue the conversation!**  
**[team@stryder.io](mailto:team@stryder.io)**

## Handshake Student Promotional Materials

Handshake is an online platform that brings together college students, employers, and college administrators. It's a lot like LinkedIn but aimed at college students, and the institution's Career Services department sets up events and pairs students with employers.

Once Handshake was adopted at a university the marketing challenge wasn't over. You can lead a student to your career services tool, but you can't make them use it. A high rate of student adoption was one of the main selling points for Handshake, and we put serious effort into producing materials that career services centers could use to promote Handshake to their own students.

Universities have plenty of options for reaching their students, and one of the most common is to leave print materials wherever there's a lot of student traffic. We gave them a wide variety of print formats, including business cards, pamphlets, standard letter-sized sheets, and 18" x 24" posters.

These materials were a collaborative effort between myself, one of the company founders closely involved in sales, and a graphic designer. I wrote most of the content for these handouts and posters but can't claim credit for the graphic design. The founder would give myself and the graphic designer instructions on what he wanted included and revisions he wanted to see when presented with each draft.

# handshake

Redefining the way colleges empower students to launch their dream careers.

This year your college will be adopting Handshake to energize their career service program.  
*Your professional life starts here.*

[/joinhandshake](#)



[www.joinhandshake.com](http://www.joinhandshake.com)

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# handshake

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You're more than your GPA. Share skills and extracurriculars on your profile.



### Apply for Jobs

Apply for your dream job all while using Handshake's interface.



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Built for students, by students, on the go.

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## CrowdHydrology White Paper

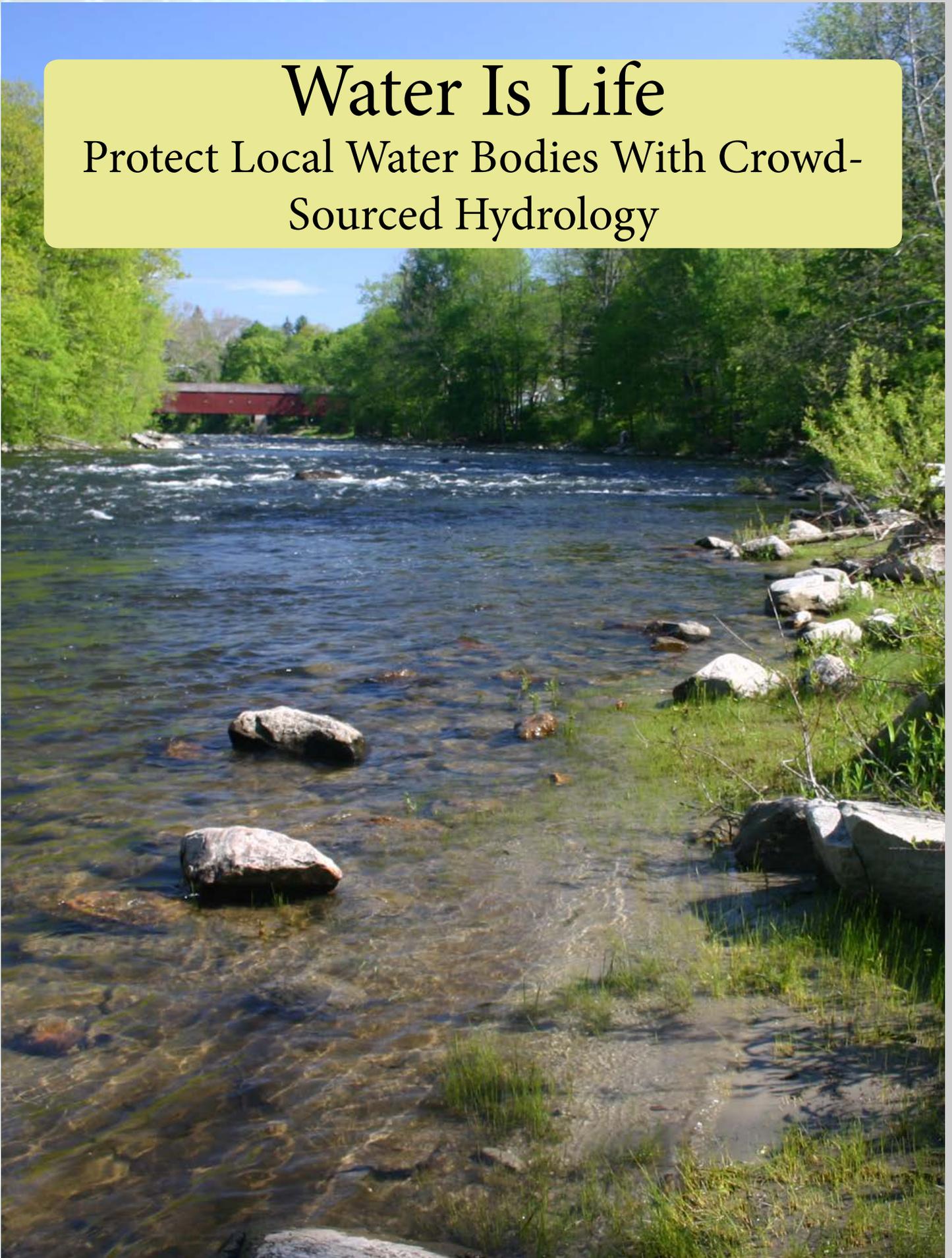
“White Paper” is the general term for a document used to promote a policy or project. Originally used for government proposals, they have been adopted widely throughout the business and academic world and can be used to market to many types of audiences

This particular white paper was developed as part of a cross-disciplinary project at Michigan Tech. Students from both the Technical Communication and Computer Science programs worked with a variety of clients to create mobile applications. My team’s client had developed an app used to record water level readings from any body of water. The data would be used to better model how fresh water moves around, both above ground and below it.

While the app could be used by anyone who had access to a smartphone and water level meter, people and institutions had to be informed and persuaded to use the app before it would be any good. The intended audience for this white paper included municipal organizations, conservation groups, lake associations, and other parties who might take an active interest in preserving their local bodies of water. Because the intended audience would be emotionally invested in the health of their community and bodies of water I tried to appeal to their rational self-interest and emotional attachment to their area.

# Water Is Life

Protect Local Water Bodies With Crowd-Sourced Hydrology



# Water Bodies Are Important

Local bodies of water, whether streams, rivers, ponds, or lakes, are always vital to a community. They provide a source of recreation for fishers and boaters, they raise property values, and they give families a place to bring their kids swimming on a hot day.

Local water bodies also provide other benefits that are absolutely essential and frequently taken for granted. They irrigate our crops, keep the local ecology in balance, and provide us with clean drinking water.



Droughts have drained water reserves across the southwest United States [a]

## They're Also In Danger

In the last couple decades, local waterways have been under a lot of stress. Extreme droughts, like the ones we've had in the southwest United States in the past few years, shrink bodies of water and lead us to pump aquifers and reservoirs dangerously low to compensate. Storm surges and heavy snow melt causes flooding in other regions.



Flooding is a common source of property damage. [b]



The National Guard hands out clean water after a West Virginia chemical spill. [c]

Beyond that, in January 2014 a chemical spill contaminated a local waterway in West Virginia, poisoning the drinking water for 300,000 people in 9 counties, causing diarrhea and vomiting. The National Guard was forced to intervene with tankers full of clean water. [1][2] A month later in North Carolina up to 164 million pounds of coal ash spewed into a local river and spread downstream, clouding the water, coating everything in sludge, and released arsenic. [3]



A reporter gets a handful of wet coal ash from a spill in North Carolina. [d]

Local waterways are much more vulnerable to these natural and industrial disasters than large ones, partly because of their size, but also because we don't understand them as well. Important commercial channels like the Mississippi River and the Great Lakes are constantly monitored in real-time, but there's virtually no data on smaller waterways.

*“Local waterways are much more vulnerable to these natural and industrial disasters...”*

## There's A Lot We Can Do...

Lakes, rivers, streams, and aquifers are all connected in a complicated web. If the water web in your area is well-understood, it can be used wisely and protected in the case of natural or industrial disaster.

*“Crowdhydrology gives average citizens the tools needed to make measurements and send them in to a scientist.”*

CrowdHydrology is a non-profit program funded by the National Geological Survey. It sets up measuring stations across the country and gives average citizens the tools needed to make measurements and send them in to a scientist. There's a lot that hydrologists can do with that data. They can monitor water conditions upstream and predict how surges will flow through waterways, providing early-warning of flood conditions. They can track the water level for recreational purposes, like fishing, canoeing, and white-water rafting.



A hiker uses a CrowdHydrology station to text in water level data. [e]

They can also keep an eye on wetlands, protecting them to prevent erosion (and therefore property damage) while keeping waterways clear and clean. Perhaps most importantly, they use the data to see how groundwater affects the level of water bodies, which lets them figure out how water moves through local aquifers. Knowing how the local aquifers work can help protect and preserve your drinking water. [4][5]

The CrowdHydrology data is shared publicly, making it accessible to city planners, lake associations, recreational groups, and private citizens who can use the data for any number of useful purposes.

*“Knowing how the local aquifers work can protect and preserve your drinking water.”*

## ...But We Need Your Help

Local waterways currently aren't watched carefully. There used to be a good reason for that: it costs a lot to send people out to dozens of spread out local waterways, just to check a level gauge and pencil in some numbers. The unlucky intern in question would have to constantly be on the move visiting so many water bodies, so far apart, and even then he'd only get data on each place maybe once every few weeks. Universities don't have that kind of money to throw around.

But we live in an information age now. People who live by those waterways, whose lives are most closely tied to them, can easily read off a few numbers and send in the measurements. That's all we're asking you to do, and with CrowdHydrology's Water Level Wizard app, it's very simple.

## Doing Your Part Is Easy

In communities and parks across the U.S., there are CrowdHydrology measuring stations set up. These contain a measuring stick in the water and a plaque on the shore containing instructions. The measuring stick tells you the water level, and the plaque explains how to send in a measurement. If you have one of these measuring stations in your community, sending in a measurement is as simple as texting the water depth and station ID code to the phone number provided on the plaque.



The CrowdHydrology project has its own water level meters, but any existing water level meter can be used with the app. [f]

Most local water bodies do not have a CrowdHydrology station, but often will have a water level meter that's used by the state DNR, lake association, or other organization. Any of these measuring stations can be brought in to the CrowdHydrology project by using our Water Level Wizard app. This free app can use your phone's GPS to tell what body of water you're measuring, and create a new measuring location on the CrowdHydrology website. You simply need to enter the water level you see on the marker and press "submit."

CrowdHydrology ☰

### Submit

---

**Station Identification Number**

**Water Level**

**Water Level Clarity**

Clear

Slightly Cloudy

Cloudy

Murky

**Picture of Water Level**

no file selected

Please take a picture of the water level measurement.

If you're feeling generous, it takes the touch of one button to include data on your water clarity, and two more touches to take a picture of the measuring site and send it along with your data. All of these functions can also be done at CrowdHydrology stations, of course.

*"This free app can use your phone's GPS to tell what body of water you're measuring, and create a new measuring location on the CrowdHydrology website."*

# You'll Help Yourself, And Others

All the data gathered by the CrowdHydrology team is available for anyone to observe and download from the CrowdHydrology website, <http://crowdhydrology.geology.buffalo.edu>. You can also view the data through the Water Level Wizard app itself, as soon as you make a measurement.

As the project grows, it will become a resource for people everywhere who depend on local water bodies for daily life. From fishing and recreation to flood protection and disaster response, the you've gathered will everyone who depends on our fresh water for the daily business of living well. We hope that you'll participate, and help us in this essential project.

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**Cover Photo**  
Housatonic

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# Science Writing

## Informing and Exciting

I'm more passionate about science writing than any other aspect of technical communication. I enjoy learning about new scientific or technical topics, getting excited about them, and then sharing that excitement with other people.

My science writing is usually aimed towards a lay audience. When presenting an audience with new information I explain it terms they're already familiar with, which makes understanding my audience the key to communicating effectively with them.

Sometimes words aren't enough to express a concept, or at least aren't the most effective way to do so. Diagrams, pictures, and infographics are often needed to round out the prose and are usually easier to digest. Graphic elements also create a bigger impression on the reader and strike emotional chords that words might not be able to hit.

Science writing isn't all about the facts. You need to be able to take your topic and infuse it with a feeling or idea. Beyond the fancy new technologies and insights, science provides a sense of optimism and wonder. That wonder and optimism is perhaps the most important thing to convey when writing for a lay audience.

## Rise of the Nones Infographic

Infographics are some of the best ways to communicate a lot of information quickly and easily. With them you can have all of the eye-catching graphic design elements you want without sacrificing accuracy or detail. They also allow the reader to skim and take in information in the order they choose and at the pace they prefer.

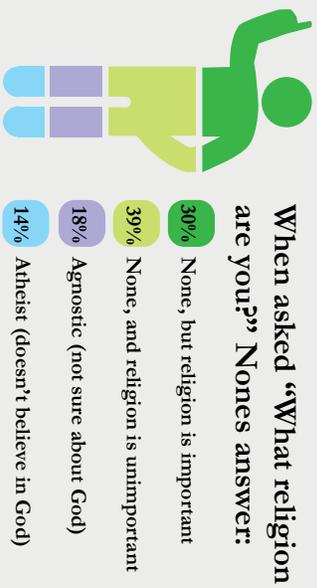
The following infographic shows how the “Nones”, a classification of people who don’t identify with any particular religion, are growing to become one of the largest demographics in the United States. It uses Pew Forum polling data from their 2007 and 2014 Religious Landscape Survey to track changes in the American public during those seven years.

The infographic is intended to show that the “Nones” are growing much, much faster than any other religious demographic, and provide an accurate picture of just who the “Nones” are. By describing the demographics of “Nones” and comparing their size and growth to other dominant religious groups I hoped to communicate how large of an upset this is for American society, especially if the trends continue.

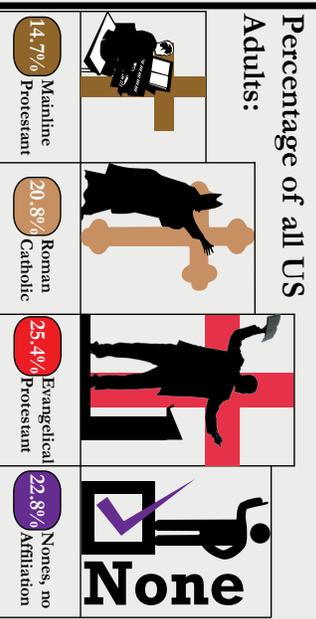
The infographic itself was made for a 19” x 13” poster format, using the landscape orientation. The inclusions below are compressed compared to the original. I’ve included both a larger version, flipped sideways to fit on the page, and a smaller version in its original orientation.

# RISE of the NONES

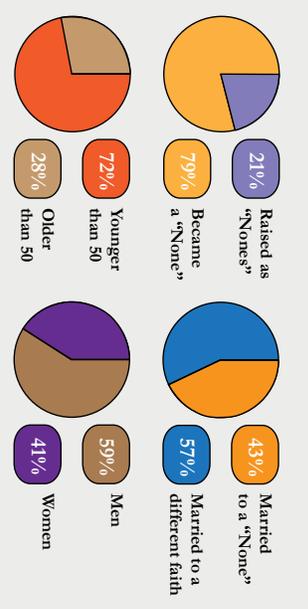
## What do Nones believe?



## How many Nones are there?



## Who are the "Nones"?

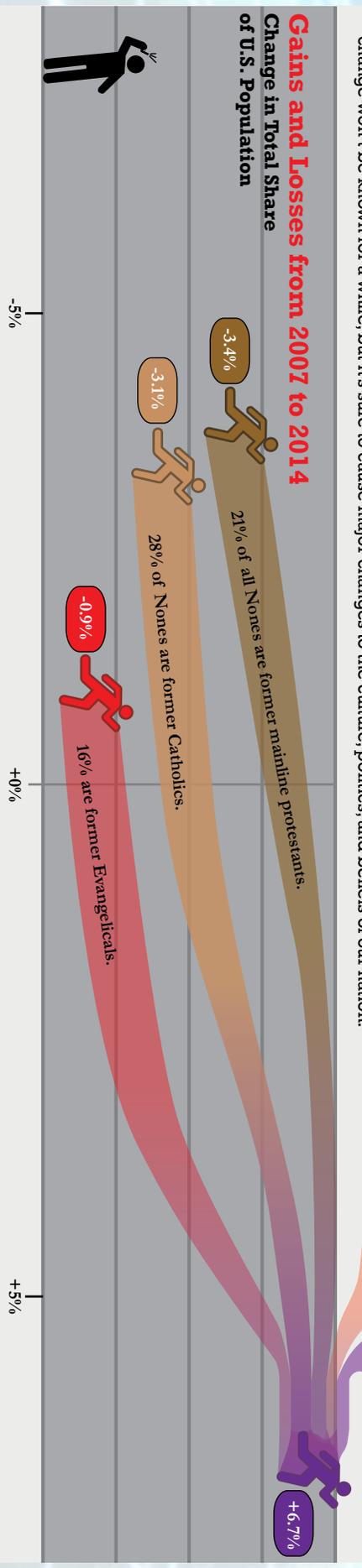


## Nones are winning the race.

Nones are the fastest growing religious group in the United States. In just the seven years from 2007 to 2014, Nones have grown 6.7 points. Most of this growth has come from religious switching: people leaving their former religious group to join another. Most Nones are under 50 and haven't been getting more religious with age, so this trend is likely to continue for decades to come. Before long, Nones might be the largest group, possibly even outnumbering all types of Christian. The effects of this change won't be known for a while, but it's sure to cause major changes to the culture, politics, and beliefs of our nation.

## Gains and Losses from 2007 to 2014

Change in Total Share of U.S. Population



14% of Nones are from other minority religions.

21% of Nones were never a part of organized religion.

# RISE of the NONES

## What do Nones believe?

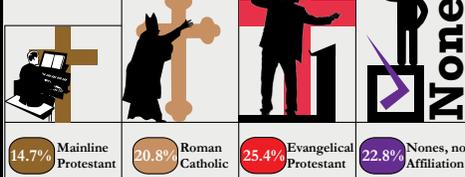


When asked "What religion are you?" Nones answer:

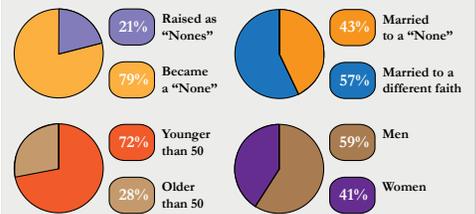
- 30% None, but religion is important
- 39% None, and religion is unimportant
- 18% Agnostic (not sure about God)
- 14% Atheist (doesn't believe in God)

## How many Nones are there?

Percentage of all US Adults:



## Who are the "Nones"?



## Nones are winning the race.

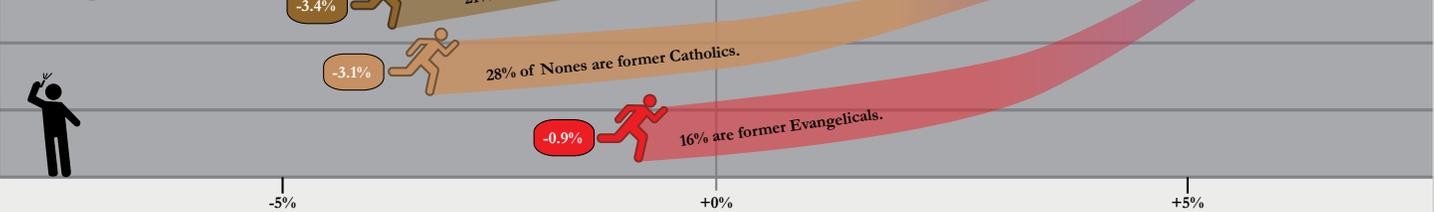
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14% of Nones are from other minority religions.

21% of Nones were never a part of organized religion.

### Gains and Losses from 2007 to 2014

Change in Total Share of U.S. Population



## Automation: Global Mobile Internet Access

*Automation* was put together as a project for a Digital Media class. We were tasked with creating a journalistic publication that dealt with some aspect of digital media. My team and I chose the broad topic of smartphone use, and our individual articles dealt with specific aspects of that topic. We collaborated on the visual design of the document and decided to make the layout resemble an iPhone interface as much as possible, which was well received.

I chose to discuss the ramifications of mobile Internet penetration in the developing world. Due to the lower cost of mobile Internet access compared to personal computer access, a large portion of the population in developing countries are gaining Internet access for the first time. The ability to communicate effectively is having profound impacts on the social and economic conditions in these regions. My article investigates some of those impacts.



# Globally Mobile

By Josh Stuempges

FREE



Internet access has become a fundamental part of people's lives wherever it is available. In the developed Western nations it has become so universal that some, like Estonia, have declared it a fundamental human right. Changes come as access affects culture and shakes up old institutions and practices. But all the changes that Internet access brings are slowed down in the developing world by one important bottleneck:

the price of developing Internet infrastructure for companies and nations, and the price of individual access for private individuals. Mobile technology, which is cheaper both in infrastructure and personal costs, has been leading

the charge towards greater access in these regions.

Fast on its heels come the cultural changes associated with greater freedom of expression, access to information, and collective action by citizens. In the rich Western democracies, these changes were very noticeable but not entirely disruptive, since freedoms of expression and information access were already public values in these societies. But many developing regions with different sets of values—most notably the Arab world and China—have faced extreme cultural changes, even when internet access is at relatively low levels by Western

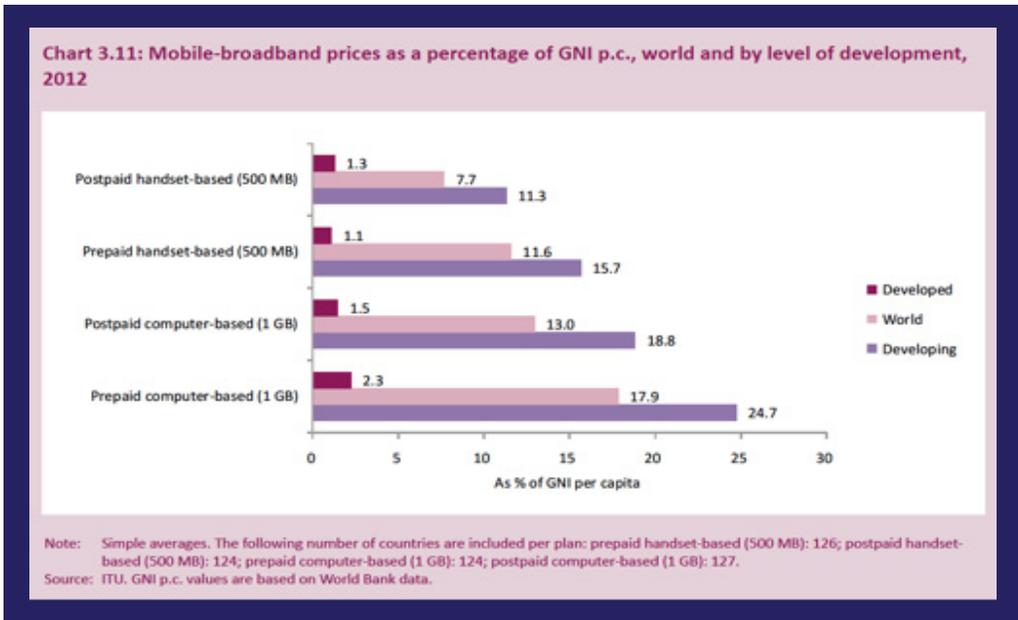
standards. The economic and political shifts of the developing world in response to mobile Internet access deserve our attention, because of both its academic interest and the practical implications of the majority of humanity joining online culture.

On the surface, the story of logging onto the Internet seems like a story about technology. Since the 90's, most American households have been able to afford at least a family

computer—and often computers for individual family members. Getting Internet access started out with dial-up as another facet of the telephone network that was already in place, and smoothly transitioned through infrastructure develop-

ments to cable, satellite, and direct broadband connections. Desktop and laptop computers are the main portals to the Internet for the developed world; mobile access is taking off, certainly, but most Westerners will go to a laptop or desktop computer for Internet tasks requiring more time or fine control.

But in the developing world, this story of technology and the personal computer doesn't hold up. Personal computers usually cost hundreds of U.S. Dollars, which the average citizen of the developing world can't afford, and they require fixed connection to the Internet on-location, which most places



in the developing world don't have access to. Getting Internet access isn't a matter of developing the technology, it's a matter of developing the infrastructure and obtaining a device, both of which are significant economic difficulties for people and Internet Service Providers (ISPs). The Internet thus becomes more of an economic issue than a technology issue.

There are plenty of reasons why mobile devices are the most efficient way for developing nations to get online. First off, smartphones are multi-purpose. In a lot of regions, landline phone infrastructure was never developed, and people's first phones are mobile phones, which can cover a large area with one tower instead of laying down miles and miles of fiber optic cables. Cell towers can relay data as well as simple audio and text messages, so including internet service with mobile phones is just a matter of paying for the extra bandwidth on the tower and charging a bit more for phone service. Compared to buying a PC and paying around 19%-25% of their income for Internet access, they can buy a mobile device for less than half the cost and only pay 11%-16% of their income for the Internet access—and get phone service at the same time. Given that deal, it's no wonder people in the developing world are opting for mobile access over fixed access. Still, Internet access in the developing world lags far behind that of the developed. In North America, 78.6% of people have Internet access; it's 63.2% in Europe. By contrast, Asia has the highest total number of Internet users (a little over 1 billion) but only 27.5% of the population is online, and in Africa the number is a low 15.6%.

A little bit can go a long way, though.

The Arab Spring is a perfect example of how even minimal access to the Internet can amplify citizens' voices and lead to massive political change. The individual countries involved in the Arab Spring had varying levels of Internet penetration but it was enough to make Facebook, YouTube, and Twitter an essential tool for organizing protests and resistance. The YouTube video of Mohammed Bouazizi's self-immolation protest in Tunisia was taken on a camera-phone, posted to YouTube and shared widely on Facebook and Twitter, and viewed on many mobile devices throughout the region.

There were plenty of factors that led to the Arab Spring protests, but those factors had been present for decades

without any sort of massive change triggering. It was the networking and information sharing of social media—enabled through cheap, accessible mobile phones—that became the catalyst and released all the pent-up energy of systemic repression. Demonstrations such as Mohammed Bouazizi's were happening before the populace had cell phones, the difference was that the technology allowed that poignant moment to be captured and shared with like-minded people. The term “viral” is used to describe the spread of ideas over the Internet, but in this case a more appropriate analogy

is gasoline; mobile access amplified that spark of dissent and spread the flame to other countries that had stacks of fuel accumulated after decades of autocratic rule. Once the fire was going, mobile access allowed it burn hotter and longer by making organization as easy as creating a Facebook event. Even attempts to shut down the Internet were met with ingenious solutions that allowed users to stay connected.

The results, as we see now, are a mixed bag. Many of the states involved in the Arab Spring had some governmental reform and change, but only a few had all-out regime change. Of those that had regime change, Libya had to fight a civil war with Western intervention, Syria is still embroiled in a vicious civil war, and Egypt has transitioned chaotically through several governments, each fraught with many of the same issues that characterized former president Mubarak's 30-year regime. But in the end, Libya and Tunisia are putting together promising new governments, and many of the other countries involved passed import reforms that have improved the lives of their citizens.

The other big story about mobile penetration is China. With a population of 1.35 billion, a swiftly modernizing economy, and autocratic single-party system, China is poised on the brink of major social changes. Corruption is present throughout all levels of government, but in China it's especially apparent at the local levels. Add to this massive income inequality and human rights restrictions, and you have plenty for people to be upset over. As cell phones find their way into the hands of the rural poor agricultural workers and other disenfranchised people throughout China, they are finding the means to organize protests and mobilize the public about various issues. Charter 08, a manifesto and petition signed by



Nobel Peace Prize winner Liu Xiaobo, was spread through cellular use in 2008. Cellular coverage has only grown since then, as has the ability of cell phones to interact with the Internet.

While these regions are facing serious political implications associated with the rise of mobile connectivity, significant economic changes are being brought in on the wave as well. In Kenya, a new charity called GiveDirectly is using mobile devices to enable direct charitable giving to rural areas. The premise of GiveDirectly is that people experiencing poverty know what they need better than well-intentioned westerners do. It seems like a simple idea, but it hasn't been tried in any large-scale way before, partly because the rural poor tend not to keep bank accounts, and hauling tens of thousands of dollars

around in a suitcase can be dangerous in some parts. The problem is solved by using some of the charitable money to buy the person a cell phone. That phone is connected to a bank account, and the person can simply access funds through their mobile device.

Another economic aid measure being used in Africa is Kiva. Kiva provides small-scale loans from private individuals (usually in the West) to other individuals in the developing world. The loans tend to be used to start up small businesses in rural areas. Kiva has become widely praised for its effectiveness, loaning out over five million dollars from around a million donors with a 99% repayment rate. Like GiveDirectly, Kiva uses mobile banking over cellular devices to complete financial transactions, like loan payments and getting the initial loan money to the recipients.

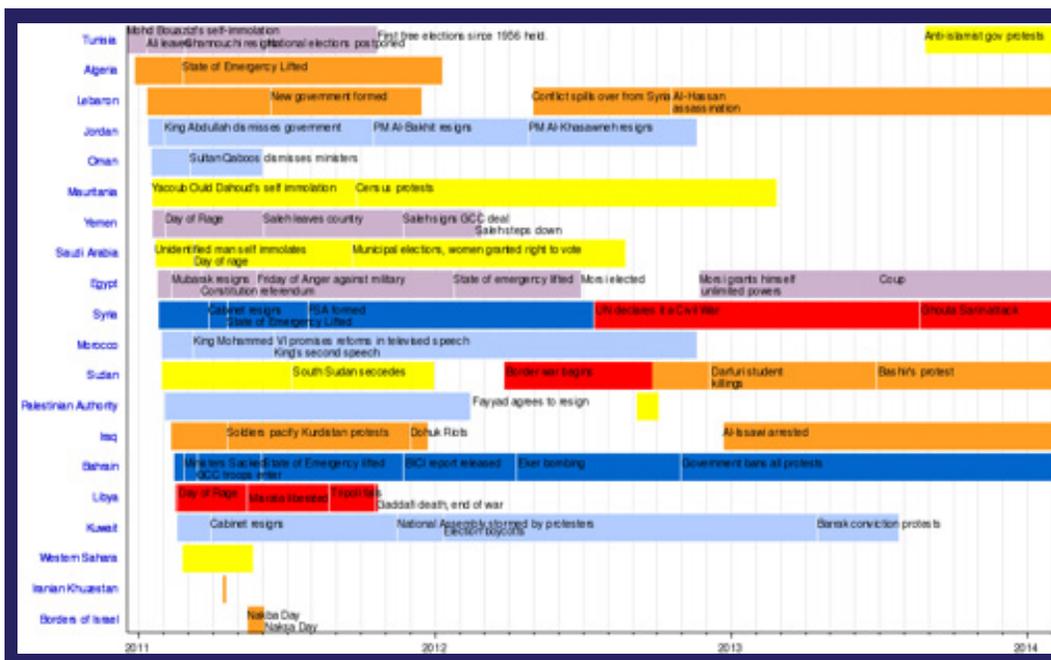
China is experiencing these economic changes as well, especially in rural areas. With the advent of cellular coverage, rural Chinese farmers can afford to be connected to the

economic boom-towns of urban China. This connection allows then to start businesses that provide goods and services for the urban areas, and start spreading the economic activity beyond the suburbs. In addition, rural Chinese are starting to take jobs in service industries and other sectors, which require different time-management skills. Cellular devices help in this, as well as with contacting employers and performing mobile banking. Farmers have also used mobile connectivity to share information about best farming practices and techniques.

There have also been situations where poor farmers have used their mobile connections to share information about price changes in crops. Without cell coverage, a farmer has to

negotiate with each buyer face-to-face to find the best price, which is time consuming and often impossible over longer distances. With mobile devices, they can negotiate prices with many buyers simultaneously, and they aren't limited to just buyers in their local market. This dynamic has shifted power to the farmers and from the buyers, who can no longer low-ball the farmers with impunity, confident that the farmers wouldn't be able to go to competitors for better prices.

The rapid rise of mobile device coverage in the developing world promises to change the lives of billions of people. From 2011 to 2013, the number of mobile broadband subscriptions in the developing world more than doubled—from 472 million to 1.16 billion—and seems set to continue accelerating. While the changes to the economies and societies of these countries are yet to be seen completely, it seems like economic and social conditions are set to improve on the whole. Information truly is the great equalizer.



## Vaccine Controversy Infographic

Public understanding of science in the United States is notoriously bad, and logical fallacies are a large part of the problem. For a science writing class we were tasked with picking a popular fallacy and debunking it with an educational poster.

I chose the controversy over the MMR vaccine and its alleged link to autism in children. The core fallacy is *post hoc ergo propter hoc*: “After this, therefore because of this.” Autism often goes unnoticed until a child begins socializing. Vaccines are given to children at an age shortly before they’re introduced to daycares and preschools, leading to the false assumption that vaccines are to blame for the developmental disorder. Throw in a fraudulent study by an unethical surgeon, and the anti-vaccine myth is born.

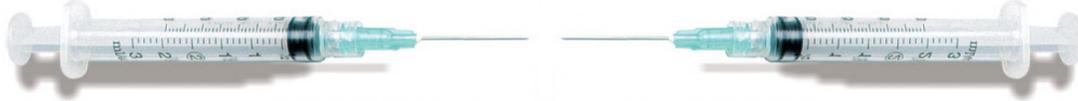
You’ll notice that this poster takes a very sarcastic tone, mocking supporters of the myth. While it might not be appropriate for most contexts the tone was a deliberate risk on my part, taken after conducting research on the Center for Disease Control’s past efforts to combat anti-vaccine conspiracy theories.

The Center for Disease Control’s (CDC) logical approaches succeeded in convincing parents rationally that there was nothing to fear, but didn’t increase vaccination rates. Then they tried to fight fire with fire and use graphics to show the consequences of not vaccinating children. These succeeded in convincing parents that the vaccine controversy was groundless and skipping vaccines was dangerous for their children – but the fear-based approach increased their irrational fears of vaccinations by an equal amount, and produced no change.

I needed an emotional appeal that would dovetail well with my rational case and target a demographic that was undecided. My audience was primarily millennials who are or may become new parents, and knowing my own generation I decided that sarcasm and ridicule would be the most successful emotional appeal, one that avoided parental fears.

# DO VACCINES

# CAUSE AUTISM?



## VACCINES CAUSE AUTISM!



### THE CLAIM

The measles/mumps/rubella vaccine (MMR for short) causes autism.

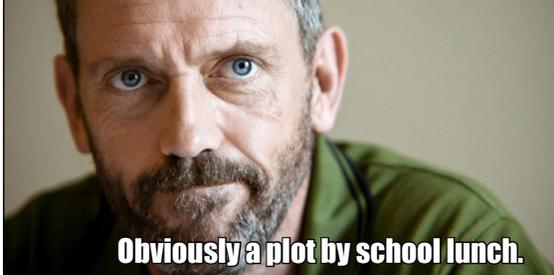
### THE EVIDENCE

A study by surgeon Andrew Wakefield, published in the British medical journal *The Lancet*, proves that the MMR vaccine increases kids' chances of developing autism.

Jenny McCarthy, a talk show host whose child was diagnosed with autism shortly after being vaccinated, supports this claim. Many people on the internet agree and will give anecdotal evidence to support the autism link.

Well... no. No, they don't.

You got **HAIRY PITS** in 7th grade?



Obviously a plot by school lunch.

### The Refutation

There are no scientific studies linking *any* vaccine to autism.

### The Fallacies

Autism is usually noticed when kids start socializing. We vaccinate our kids before that, so they're protected at day-care. Parents of kids with autism panicked, assuming vaccines were to blame. But research since then has shown no link, and suggests that autism is determined before birth.

The journal Dr. Wakefield was published in retracted his study. His medical license was revoked for fraud.

## OH YEAH? THEN

## What About This!?

### YOU WOULD SAY THAT... BECAUSE IT'S A CONSPIRACY!

Vaccine makers suppress evidence so they can keep poisoning kids.

If a scientist or official disagrees with us, they *must* have been bought by the vaccine companies.

If a journalist disagrees with us, they've either been fooled, or their corporate overlords told them what to write.



I bet the dog ate your homework, too.

People disagree with me?!



Conspiracy! H.

Fun! We could just as easily say the anti-vaccine side is a conspiracy to kill us with weaponized measles.

The medical community *does* recall harmful vaccines. They did in 1988 with a defective Mumps vaccine.

If everyone disagrees with you, it doesn't mean there's a conspiracy. You're probably just wrong.

But seriously? Kids are dead because of this.

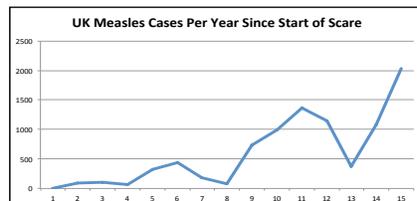
### Measles Isn't Fun

1 in 200      Convulsions  
1 in 1000    Encephalitis  
1 in 5000    Death

Vaccine rates plummeted after Wakefield's paper went viral, and measles cases in the UK went from about 100 a year to several hundred, and broke 2,000 per year in 2012. That's around 7,600 extra cases so far.

And even with modern treatment, people die from it.

These numbers are just for the UK, but the scare cut vaccine rates in many countries, including the US.



# Usability Design

## Analyzing, Testing, and Revising

Usability design is process that builds Scientific and Technical Communication directly into a product. It works on an intuitive level as a user interacts with a product. An unusable product is opaque and confusing, requiring significant training to use. Usable products are the opposite: when a user interacts with one they don't have to consciously think about it.

Designing usable products is a process. Some things, like labels on buttons, can be obvious. But there are many subtle stumbling blocks in any product, and the development team often knows their creation so well they overlook problems. Proper usability design requires a cycle of analysis, tests, and revisions. I have included a submission for each of these steps.

Usability analysis involves gathering information on the people who use the product. It's similar to market research but focuses on the users' experience with similar products, and finding their basic frustrations with an existing system. Analysis of the users' needs and habits is essential for finding a starting place.

Once a product is far enough along, usability testing is the next step. Actual users are brought in to interact with the product and give descriptions of their thoughts and expectations throughout the process. This step of the cycle also bears a resemblance to market research, but with a focus on finding usability snags within the product. Usability testing acts like a minesweeper for annoying problems that the user will face.

After testing, product revising is needed to fix the identified issues. Putting together the data from the user analysis and the usability test, the STC professional comes up with recommendations to fix usability issues and improve the product. This is an iterative process, however, and the product often goes through several cycles of testing and revising.

## User Services Help Guide: User Client Analysis

Michigan Tech's user services department is effectively the university's IT support center. If you're a student or professor on campus, you call user services when you have a problem with your computer.

At the time of this project, the department lacked rudimentary training materials for new students hired to take care of complaints. One of my first classes as a Scientific and Technical Communication student had us tackle this project, setting us up in groups of four and introducing us to subject matter experts from user services.

This section is a preliminary assessment of the users' and client's needs. This step was complicated by having two sets of users: the IT staff who would be consulting our document, and the frustrated users who would be receiving our instructions second-hand.

## **Memorandum**

**Date:** October 26<sup>th</sup>, 2012

**To:** Ann Brady, Project Manager

**From:** Team Awesome: Sarah Ingold, Megan Walsh, Lilly Manns, and Josh Stuempges

**Subject:** User Client Analysis Report: Accounts and Passwords

In this User Analysis Report, Team Awesome interviewed clients and users to gather information about required, needed, and desired material for a guide to Accounts and Passwords.

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### **Accounts and Passwords**

Accounts and Passwords is a sub-category of Identity Management (IDM). IDM is a comprehensive system that verifies and safeguards the credentials of an individual at Michigan Tech. It is responsible for being able to verify students and protect their information such as social security numbers, passwords, etc. Because IDM is concerned with the verification and protection of individuals, it is tied in to many other areas of IT such as multi-drive contents, swipe card access, printing, and email. For this documentation, specifically, we will be focusing on verifying that an account exists and confirming that it has the access that it is supposed to.

---

### **Clients**

The clients, Casey Will and Matt Watrous, require a guide for Accounts and Passwords for the IT help desk, which will assist IT help desk staff assist users with account and password issues.

They provided a basic format, which this team will follow, and provide recommendations for. In addition, they require that the guide be in an online format, to be placed in the IT departments Wiki page. This guide needs to be able to be updated as needed. Useful to technical IT help desk users, not end users.

---

### **Users**

#### **IT Help Desk -**

In general, what IT needs is documentation that puts the same set of instructions and information in everyone's hands. There are three different parts to this documentation that they have asked for. The first part of this ideal documentation will be an over view of how accounts and passwords work. This will include how accounts get created and are managed by the IDM system. The second

part will comprise step-by-step instructions for specific account management tasks, including verification using the tools provided. The third and final part of the proposed documentation will be a troubleshooting guide that will isolate where the problems lie in an account.

The list of common problems that IT provided is as follows:

1. User cannot log into a computer on campus.
2. A folder is not showing up on a multi-drive or the access is denied.
3. A user's username or password is not working for log in/email/ etc.
4. A user cannot gain access to network shares.

### **Undergraduate/Graduate Users -**

The Undergraduate and Graduate students do not have numerous issues when it comes to accounts and passwords. The most critical problem that the students encounter is:

- Not being able to log into their accounts
- Consistency with the drives (specifically the M: drive)
- Issues with sharing

None of them blame IT for the any of the issues they would encounter. Though, they were frustrated that they would frequently be put on hold for long periods of time or if IT needed to transfer them to a specialist IT would tell them to call a certain number.

### **Staff/Faculty (Administration) -**

Based on interviews with Kristi Hauswirth of the Registrar's office and an e-mail questionnaire sent to Heather Suokas and her colleagues at the graduate school, the administration staff has several specific problems.

- Long wait time on IT tickets
- IT sometimes lacks answers to common questions
- Accessing M-Drives, off and on campus
- Time delay on getting parent guest accounts activated
- Password change protocols are needlessly complicated
- Ambiguity with Safety First registration
- Slow log-ins

The complaints about IT service will hopefully be helped by the user documentation produced in this project. M-Drives especially are a complicated and common problem, but a concise guide would bring down the time needed to fix it considerably. Ms. Hauswirth frequently takes care of password-reset requests, but feels IT should be able to handle passwords themselves instead of re-directing the user to her office. Some of the other problems, however, are not in IT's domain. Parental guest accounts and the Safety First program aren't handled by IT, and slow log-ins are

usually the result of either a generally slow network, a slow machine, or a user attaching too much data to their profile.

---

## **Proposed Guide Format**

We plan on creating two separate guides for this documentation: a guide for IT and a guide for users. By doing this, we will lessen the need for users to always have to call IT for assistance. It will also help to guide the users to the most knowledgeable person to talk to about the problem that they are having.

**IT Guide** - The IT Guide will be composed of three different parts:

1. Overview of accounts and passwords
  - This section will include how accounts get created and managed by the IDM system.
2. Step-by-step instructions for account management tasks
  - This section will cover verification using the tools provided.
3. Troubleshooting
  - This section will isolate where the common problems lie and direct the user to the proper means of fixing the problem.

**User Guide** – The user guide will consist of common problems that users can fix on their own and how to resolve them. For the problems that the users cannot fix on their own, it will provide contact information for the SME depending on what the problem is.

## Traveller Tours: Usability Test Plan

During the summer of 2013, I studied abroad in Estonia. A large part of the program was performing a usability design cycle on the website of Traveller Tours, a guided tour company based in Tallinn. We were given a largely complete user analysis by the client, but spent a significant amount of time and effort performing usability testing and brainstorming solutions.

The following memo describes our usability testing plan in detail and includes copies of the testing materials used such as questionnaires, introductory scripts, comment sheets. The actual testing was performed later with Morae usability testing software. The Morae software records a constant screen-capture of the user's computer screen. It also records the test process through a web-cam and microphone, capturing the user's facial expressions and their dialogue with the test runners.

# MEMO

**To:** Dr. Marika Seigel

**From:** Hailey Rouleau, Katelyn Waara, Joshua Stuemppes

**Date:** May 21, 2013

**Re:** Usability Test Plan

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## **Test Objectives**

Through usability testing, we are trying to evaluate how useful and efficient the Tallinn Traveller Tours website is. We want to be able to give feedback on what the good and bad is about the website so that the creators can ensure that they have a properly running, easily accessible, fresh, and entertaining website. For example, if we are trying to complete a task in a timely manner, such as choosing a tour, time, and finding a price, and we do not feel that we are able to complete the task in enough time, we would be able to inform the company with suggestions to correct these issues.

## **User Profile**

The users that we are targeting for our testing include college students, roughly 18-25 years old, but also extends to an older generation (30's and 40's), both of whom are interested in international travel and seeing parts of a city that are unique and unlike the typical tourist trap.

## **Methods and Procedures**

In order to test the usability of the Traveller Tours website, our five test participants will engage in a usability test. We will be using a protocol-aided testing method to gain information about the website. Our participants will be given a scenario or task list to follow during the tests. By the use of this testing method, we will address accessibility issues and other problems associated with the site's navigation and overall usability.

The tests will be conducted in the on Michigan Technological University's Walker building, in a conference room within the HDMZ during the week of May 20-24. We will be utilizing the Morae usability testing software available to us by the university. Once the participants arrive, we will introduce ourselves and have them fill out a pre-test questionnaire, describe the purpose of the testing and scenario/tasks we would like the participant to complete, then conduct the testing and finally ask the participants to complete a post-testing questionnaire.

## **Materials**

We have created a number of written materials we will be using to aid our usability tests, including an orientation script to ensure we greet each participant and describe the testing in the same manner, a hard-copy of our scenario and task list for each participant to follow, pre-test and post-test questionnaires, a standard note-taking sheet, and a release the participants must sign since we will be taking video and audio recordings during the tests. Those documents can be found as enclosures with this memo.

We anticipate the test (including the pre and post-test questionnaires) to take a total of 30-45 minutes.

### **Tasks and Scenarios**

Our participants will be given a specific task to complete using the Traveller Tours website. Based on the description our client gave of the specific purpose and target audience of the site, we've drafted this scenario for our participants to imagine themselves in.

The scenario is as follows:

"You are a college student looking to book a tour of Tallinn, Estonia. We would like you to use the Traveller Tours website to work through the process of booking both a walking tour as well as a day excursion. After establishing your budget, you have allotted \$200 (USD) to use towards tours of the city. Browse the tours, choose one you like and work through the motions of booking the tour, but do not submit any payment information at the end."

### **Team Roles and Responsibilities**

During the test, there will be three main roles: the moderator, the operator, and the recorder.

The recorder is tasked with recording notes on each subject's actions while undergoing the usability test. They will have a laptop or pen and paper, and take notes in a matrix that includes columns for Subject's Actions, Subject's Thoughts, and Conclusions. These notes will be used in the evaluation of the usability test's data.

The operator's job is to make sure the equipment runs smoothly. They will be in charge of the lab equipment (including operating the Morae software), and everything to do with getting it prepared and operating it during the test.

The moderator will inform the subject of the test parameters. They are responsible for making sure that the subject understands the test and its protocols, as well as making sure that the subject is relaxed and acts naturally throughout the test.

We've decided that each team member will have a chance to hold each role in during the testing: moderator, operator and recorder.

### **Evaluation Measures**

The evaluation procedure will be largely based around observing the subject as he or she use the website for the first time and make decisions based on the information available. He or she are instructed to visit the website and go through the steps of booking a tour, while narrating their thoughts and impressions. A team member will be taking notes throughout the process, and both the on-screen actions and audio/video will be recorded by the equipment for later

review.

Prior to the test, the participant will complete the pre-test questionnaire which will discern demographic information, their attitude towards travel. After the test, a post-test questionnaire will be given, asking about their experience on the site. Questions for both questionnaires will include, but are not limited to:

- Adjective list to describe the type of traveler they are
- Frequency they travel
- Previous travel experience
- Likelihood of taking a guided tour in general while traveling
- Likelihood of taking a guided tour like the one described on the site while traveling
- Age, Gender, and Nationality
- Languages spoken
- Whether they felt more inclined to a day trip or walking/biking tour
- Any difficulties or confusions experienced while using the site
- What they found attractive about the site
- What they found unattractive about the site

After completing the test and survey, the subject is excused and the team will organize and combine the data from observations, recordings, and the surveys. The conclusions will be written up and presented to the client.

Enclosures

**Orientation Script**

Hello (participant) and thank you for deciding to participate in our usability testing today. My name is (moderator) and these are my colleagues (recorder and operator). As you know, we are going to be testing the usability of the Traveller Tours website which is used to book tours in and around the city of Tallinn, Estonia.

While you are engaging with the Traveller Tours website, we would like you to speak aloud any thoughts or comments you have and to talk your way through what you are doing. This is useful because we will be taking note of your responses and can make recommendations for the site because of your comments and suggestions.

Please remember that we are not testing your abilities, but the accessibility and navigability of the Traveller Tours website. If you would like to pause the test at any time, please let me know and we can take a break. If you would like to stop the test for any reason, please let me know that, too.

Do you have any questions before we begin?

### **Scenario and Task List**

“You are a college student looking to book a tour of Tallinn, Estonia. We would like you to use the Traveller Tours website to work through the process of booking both a walking tour as well as a day excursion. After establishing your budget, you have allotted \$200 (USD) to use towards tours of the city. Browse the tours, choose one or more that you like and work through the motions of booking the tour, but do not submit any payment information at the end.”

Please complete the following tasks:

1. Please search to find your way to the “Traveller Tours” website by searching on search engine of your choice.
2. Navigate the site to find a tour or tours you’re interested in.
3. Go through the motions of booking a tour once you’ve made your decision, but do not enter any credit card information at the end.

### Pre-test Questionnaire

1. Please specify your:

Age:

Gender:

2. Please list any languages you speak, and indicate whether you are fluent, can communicate only in writing, can communicate only while speaking, know enough to get by, or only know a few phrases:

3. How often do you travel, both internationally and domestically?

4. Where have you travelled to?

5. Which adjectives best describes your travelling style? (please circle those that apply)

*Adventurous Experienced Traditional Conventional Open-minded Exotic Inexperienced*

*Popular Original Solo Group Flexible Local-Focused*

*Attraction-Focused Relaxed Exciting Other:*

6. What is the likelihood that you would take a guided tour while traveling?

7. Are you more inclined to take a day-trip or a walking tour while travelling?

### **Post-test Questionnaire**

1. What is the likelihood of you taking a guided tour like the ones described on the site while traveling?

2. Which do you feel more inclined to take--a day trip or walking/biking tour--based on how the information was presented on the Traveller Tours website?

3. Did you come across any difficulties (including but not limited to confusing terms, accessibility issues, etc.) while using the site? Please explain.

4. What did you find appealing about the Traveller Tours website?

5. What did you find unappealing about the Traveller Tours website?

6. Please indicate your level of satisfaction based on your experience using the Traveller Tours website.

*1 (Very dissatisfied)*

*2 (Moderately dissatisfied)*

*3 (Neutral)*

*4 (Moderately satisfied)*

*5 (Very satisfied)*

**Note-taking Sheet**

(printed version allots more space for notes)

Subject's Name:		
Subject's Actions	Subject's Thoughts	Conclusions

## Traveller Tours: Usability Test Report

During the summer of 2013, I studied abroad in Estonia. A large part of the program was performing a usability design cycle on the website of Traveller Tours, a guided tour company based in Tallinn. We were given a largely complete user analysis by the client, but spent a significant amount of time and effort performing usability testing and brainstorming solutions.

The following memo gives the results of our usability testing and provides recommendations for fixing several notable issues. We presented it as a group at the Traveller Tours company office. This was an especially gratifying experience because when we checked their website a few hours later many of our recommendations had already been implemented.

This is the complete original document, except for an appendix which had to be removed because threatened to burst the size limits of this portfolio. The appendix was redundant, as those materials were already covered in the section before this.

Usability Test Report: Tallinn Traveller Tours

Katelyn Waara, Hailey Rouleau and Joshua Stuempges

June 6, 2013

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## Section 1

### **Executive Summary**

For those travellers looking to book guided tours of a foreign city, whether it is fun and funky, or one that shows the historic beauty of the town, Tallinn Traveller Tours is an informative and effective tour-booking website.

Collaborating with our clients from the site, we completed usability testing to observe actual users interacting with Tallinn Traveller Tours. The client asked us to aim our testing to evaluate accessibility, design and aesthetics, and user experience.

Through our observation and usability testing, we evaluated how effective and efficient the website is. In this report, we have described our methods of testing, discussed our results and presented our final recommendations. We hope to provide both positive feedback as well as improvements that could be made to the site so the clients can ensure their site is easily accessible, fresh, and entertaining. Most importantly, the website needs to be effective for booking guided tours in Tallinn.

Through the testing, we learned that the Tallinn Traveller Tours site is overall very attractive and easy to use with a few minor issues. Positive notable comments included:

- 3 out of 5 participants said they were “very likely” or “highly likely” to book a tour with Tallinn Traveller Tours
- Ease of navigation and booking process

Notable usability concerns we observed during our testing were:

- Issues with the phrase “complete booking” in the booking process
- The distinction between the daily and private tour tabs
- Drop-down boxes when choosing a time for a tour
- Some tours not showing up on the main “walking tours” page

Through our usability testing, we hope to provide positive feedback and recommendations to possibly improve the usability of the Tallinn Traveller Tours website.

## Section 2

### **Introduction**

Tallinn Traveller Tours is an international website aiming to engage younger, low-budget travellers, as well as experienced travellers, in guided tours led by locals. The main attraction comes in when those travellers are looking to experience a foreign city with the help of a local.

During the initial Skype meeting with Ulane Vilumets, we gained valuable information about what the company would like to achieve through the usability testing. We then established these main objectives:

- Evaluate the accessibility of the website
- Assess how users felt about the overall design and aesthetics
- Provide an overview of the user's experience while using the website

Our team then conducted usability testing on the Tallinn Traveller Tours website. This report includes more detailed descriptions and explanations of our project, testing methods, user profiles. We will then summarize our findings and make recommendations of suggested solutions to the usability concerns raised during testing.

## Section 3

### Methods

#### Heuristic Evaluations

In order to test the usability of the Traveller Tours website, our team first conducted our own heuristic evaluations of the website, followed by five test participants engaging in a usability test.

A heuristic evaluation, according to the Nielsen Norman Group, “involves having a small set of evaluators examine the interface and judge its compliance with recognized usability principles.” (<http://www.nngroup.com/articles/how-to-conduct-a-heuristic-evaluation/>) By looking at the website with guidelines such as visibility of system status, consistency and standards, and user control and freedom, our team was able to find different information than what we found during our usability testing.

There are 10 general principles for interaction tested during a heuristic evaluation. The three most notable principles found in our evaluations are listed below, with the positive findings following them.

1. Visibility of system status: The user is always aware of their location on the website. Because of the clear headings on each of the pages, the site is easily navigable.
2. Match between system and the real world: The different translations to Spanish, Russian, Estonian and English allow the site to be seen and understood by users from different languages.
3. Recognition rather than recall: Information like pricing is available on both the initial page and the individual tour description pages. This keeps the user from having to remember the pricing. Instead of forgetting and having to click back to the previous page to look what the price was, the information is on multiple pages.

The main recommendation based on our heuristic evaluations is in regards to the principle of help and documentation. Currently, the website does not have a help/FAQ or search function. Having these would ensure that if the user had any problem they would be able to correct it themselves instead of getting frustrated and finding a new tour site to book with.

#### Usability Testing Description

For our usability testing, we used a protocol-aided testing method to gain information. Our participants were given a scenario and task list to follow during the tests. By the use of this testing method, we could address accessibility issues and other problems associated with the site’s navigation and overall usability. We were also looking to gain opinions about the aesthetics and overall design of the website.

### **User Profile**

The five users targeted in our testing included college students, roughly 18-25 years old, all of whom were interested in international travel and seeing parts of a city that are unique and unlike the typical tourist trap. All participants we recruited had experience using the internet, and previous travel experience, both internationally and within the United States.

### **Environment & Materials**

The tests were conducted in a conference room at Michigan Technological University during the week of May 20-24. We utilized the Morae usability testing software made available to us by the university. The Morae software allows us to video record the participants voice and facial expression as well as mouse tracking while they are interacting with the site.

Our team created a number of written materials to aid our usability tests, including an orientation script, scenario and task list, pre-test and post-test questionnaires, and others. All of these materials can be found in the appendices (Section 6).

### **Team Roles & Responsibilities**

The usability tests involved the three main roles of recorder, operator, and moderator, each of which was held by a member of our team. The recorder was tasked with recording notes on each participant's actions, while the operator made sure the equipment ran smoothly (including preparing and operating the Morae software). Finally, the moderator interacted directly with the participants.

### **Task & Scenarios**

Our participants were given a specific task to complete during the tests. Based on our client's needs, we drafted a scenario and task list for our users to follow during the testing. The full scenario and task list can be found in the appendices (Section 6).

### **Evaluation Measures**

The evaluation procedure was largely based on observing the participant as he/she used the website for the first time and made decisions based on the information available.

First, the users each completed a pre-test questionnaire. He/she was then instructed to visit the website and go through the steps of booking a tour, while narrating their thoughts. After the test, a post-test questionnaire was given, asking about their experience on the site. All notes, including the audio and videos, were later reviewed. The discussion of our test results as well as the recommendations we would like to make based on the results are presented in the following section of this report.

## Section 4

### Results & Recommendations

Through our testing, we found that the site has several positive aspects that stood out to our users. 4 out of 5 users found the color choices and aesthetics of the website to be attractive and appealing. In the end, 3 out of 5 users said that they were “very likely” or “highly likely” to book a tour if they were to visit Tallinn, with a fourth saying they were “moderately likely” to book a tour. None of the users had any problems booking a tour. Some user comments were:

- Design is “very appealing. I like the interactive clouds.”
- The photos “drew me in and made me want to learn more about the tours.”
- The tours “looked like a good way to really get to know the city.”

Although we received a lot of positive feedback, we also were given a lot of responses in regards to usability concerns.

#### Booking Process

The most serious issue we observed was one user believing there would be more steps in the booking process. The user expected to input payment information before finalizing their booking and clicked on the “complete booking” button without realizing it would schedule a tour.

A possible fix for this problem would be to have the button say “continue” instead of “complete booking”. When clicked, instead of booking the tour, it would initiate a pop-up window to notify the user that by proceeding they will be scheduled for a tour, and explains how they will be contacted and how payment will be collected. The complete booking button could then be relocated to this pop-up window.

#### Daily vs. Private Tours

A second usability issue we observed was users not understanding the difference between daily tours and private tours. This ambiguity between daily and private tours led several of our users to book a private tour instead of daily tour. It sometimes took several trips navigating between the tour description and the booking page before they realized what the issue was.

Suggested solutions include placing a small description beneath both daily and private tour tabs, as well as beneath each tour description.

To make the descriptions more effective, a different color text or tab could be used to make it more eye-catching. One color option would be to use the yellow from the calendar. For example, when the user selects a date on the calendar, the date changes to yellow. This color could also be implemented in other parts of the website to carry consistency throughout.

### **Tour Time Drop-Down Box**

A third concern caused by this confusion was trying to choose a different time for daily tours. Most of our users attempted to set the time for their tour using the calendar next to each tour's description. The calendar has a drop-down box underneath it for selecting the time of the tour. In the case of daily tours, this box is grayed out and can't be interacted with. Users became frustrated when the drop-down was not interactive.

Suggested solutions:

- Have a functioning drop-down box with only one time offered
- Add a notice beneath the drop-down box, informing the user that daily tours leave at a set time during the day
- Eliminate the drop-down box and display only one time for the daily tour with no clickable properties

### **Tour Visibility**

Another usability concern is that some tours are not always visible from all parts of the site. In our usability testing, users did not find the Tallinn Pubcrawl and Tallinn Free Tour on the main menu; it only showed up after clicking the detailed description of one of the other walking tours. Since then, the issue with the Tallinn Pubcrawl has been resolved, and it now shows on the main tab for walking tours. The free tour does not.

While the absence of the free tour from the main page is intentional, one user was upset when they found that it wasn't advertised on the main page and thought it was a problem with the website. The absence of the Tallinn Pubcrawl on the main page gave the same impression, in addition to hiding a unique tour that the user was interested in.

During our second meeting with the client while in Tallinn, we learned that the free tour was intentionally absent from the first page. Because the absence of the tour on the main page was a concern raised in our testing, we felt it was necessary to draw attention to it.

### **Photos and Videos**

The final usability concern our users encountered was a lack of photos as well as videos on some tour descriptions. Unfortunately, videos often went unnoticed when they were featured.

Suggested solutions:

- Organize a way for tour participants to submit their own photos and videos from the tours
- Have tour guides take photos and videos during tours to put on the website
- Make the distinction between photos and videos more apparent, possibly with color or a rollover effect

## Section 5

### **Conclusion**

Through our usability testing, we gained feedback that helped us understand the positives and the potential usability concerns of the Tallinn Traveller Tours website. The usability tests provided a number of things in the website that should remain unchanged, as well as some that could be improved.

Our users gave positive feedback on the following things:

- The quality of photos and videos
- The navigability and locations of information
- The authenticity of the tours

While generally positive, our users also raised several concerns during the usability testing, including:

- Ambiguity between daily and private tours
- Users believed there would be more steps in the booking process, including an online payment option
- Confusion with trying to choose a different time for a daily tour
- Lack of photos on some tours
- Videos were not noticed or were unavailable for some tours