HEROTIME

Final Project Report

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I. INTRODUCTION

Learning is a continuous cognitive and social process, often taking place in formal institutions with prescribed academic curriculums under the direction of professors, teachers or certified instructors. However, learning doesn't stop there; it can be a life-long process and isn't always linear. Non-formal institutions approach learning through organized programs typically with a teacher at the helm, such as as second-language, swim, and music classes, whereas informal learning occurs outside of standardized programs in a self-directed manner without the instruction of a teacher, though a 'resource person', like a friend of family member can be relied upon to clarify problems and assuage doubt (Schugurensky, 2000). These non-formal and informal settings provide outlets for exploring creative skills, hobbies or interests.

People often voluntarily continue learning new concepts in addition to acquiring extracurricular hobbies or interests outside formal settings for intrinsic and extrinsic reasons. Intrinsic motives arise from one's need to feel competent, in addition to curiosity, interest or community identification (Deci, E., 1975). Extrinsic motivations, however, are reinforced through increasing human capital, often through learning, ultimately resulting in job opportunities, self-promotion or recognition within a community (Becker, G. S., 1962). On the flip side, the same motivations can be applied to those facilitating the learning process.

While people have motives for continuing education, learning a new skill comes with its share of ups and downs. No matter where a person is on the spectrum of learning, uncertainty, frustration, or learned helplessness can usher in when there's a lag in progress or continuously failed attempts. Consulting books or seeking advice from knowledgeable friends and family can help assuage the problem. Turning toward the Internet for help, surfing forums, watching instructional videos, or engaging with online communities can also push one past a rough period of stagnation. In fact, people's reliance on the Internet for information about hobbies and interests has grown. According to a Pew study, 83% of adult Internet users sought out information on the web pertaining to their hobbies and interests in 2007 (Fox & Griffith, 2007). In addition, as the Internet has expanded and has become more accessible, 73% of all Americans used search engines to mine the information in 2012, with 41% receiving conflicting information and 38% feeling overwhelmed by the ample results (Purcell et al., 2012). Relevant results depend on the relevance of the users' query. To receive the desired information, the user has to predict the accurate search query, wade through the results in a trial-by-error fashion until the search engine has unearthed the accurate information. While the information can be searched and extracted, it is nonetheless a tedious and time-consuming task.

Despite the plethora of information on the Internet, learning new skills can be difficult with the absence of rich, face-to-face communications (Selamat & Choudrie, 2004). Sometimes person-to-person interactions are needed for a smooth transmission of experiential knowledge. Although 73% of online adults utilize social networking in the

United States, the ideal resource person may not always be within one's social circle and one must look outside of it for assistance (Duggan & Smith, 2013). When the resource person is not directly connected to the person in pursuit of learning or is not easily accessible, the possibility of giving up can become greater.

Although online platforms exist for accessing explicit knowledge typically seen in academia (e.g. massive open online courses) as well as connecting people who share similar interests and passions (e.g. Meetup, Facebook Groups, Craigslist), there's little out there pairing people who have an interest in learning niche, creative-living activities with individuals possessing the experiential knowledge they need to succeed along their path toward mastery. In today's modern society, can software assist in the discoverability of finding someone with experience to help a novice learn something of interest or get unstuck from a problem in a semi-structured manner all while feeling as though they can trust one another?

HeroTime is designed to address the need for connecting those in the midst of learning a lifestyle, or a creative-living, activity with a 'resource person' who is willing and able to provide the assistance they need in a person-to-person interaction. The platform focuses on facilitating easy discoverability of lifestyle experts across a variety of different creative verticals within the local online community, while fostering trust between the consumer and the expert for a smooth exchange of wisdom in an offline context. Many people have talents or passions they'd like to share with others, but they don't have a means to promote themselves. HeroTime encourages consumers to also become sellers of the lifestyle skills they've already mastered.

II. ABOUT US

This project challenged all of us to think about the way such a system is designed, built, and interacts with people looking to enrich their creative lifestyles and those passionate about showcasing their expertise. To make the team more efficient, we orchestrated a separation of tasks into three core parts: user research, visual design, and system architecture design.

Christine Petrozzo planned and executed qualitative research covering many aspects of the project to glean insights and actionable tasks. She took on the role of project manager and drove many aspects of the product design forward by writing user stories, requirement specifications and conducting usability tests.

Lazar Stojković created a clean, beautiful, and intuitive responsive interface. More than being just a pixel perfectionist and interaction designer, he did a majority of front-end development, ensuring the app has full cross-browser and cross-device functionality. Early on, he also used micro-sprints to gather feedback on user needs and expectations.

Corey Hyllested brought his technical analysis and vision to creating a zen product architecture. He drove the design and implementation of the development operations, system administration, custom deployment infrastructure, and most of the back-end server.

III. ACKNOWLEDGEMENTS

A huge thanks to our mentor, Coye Cheshire, for his invaluable feedback, guidance, and constructive feedback. Playing devil's advocate helped us more than you know.

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Thank you to all the people who participated in our user interviews and usability tests — without you, we would've never come to the realizations we did to make this project come alive.

IV. PROJECT RATIONALE

People with shared interests make up much of the social fabric of the Internet. In 2001, 90 million Americans used the Internet to get information from a group, with 46 percent connecting with groups who share their interests (Horrigan, 2001).

Although the Internet has helped people find others who share their interests, researchers argue its infrastructure excels at the transfer of explicit knowledge — knowledge that can be articulated or written down (Haldin-Herrgard, 2000).

There is easy access to a vast amount of information online, but learning new skills can still be difficult with the absence of rich nuances of face-to-face communications (Selamat & Choudrie, 2004). The Internet has certainly provided more media-rich communication tools, like video for digital storytelling, and people have been able to convey tacit knowledge — know-how gained through learned experiences of individuals — residing within their heads and sharing it with others across the globe (Mirza, 2009). Although, much of the content accessible on the web takes the shape of explicit knowledge, or knowledge that can be written down or articulated, normally found in books, manuals and databases (Mirza, 2009). However, while there is a “degree of tacit knowledge” learned through media-rich web tools, it is often edited, and, therefore, only provides a high-level overview of the subject area or highlights the instructions of the activity without accounting for contingencies across contexts (Chua, 2001).

Interestingly, there’s been little created to connect people yearning for a life of creative-living with lifestyle-learning instructors willing to participate in the transfer of tacit knowledge in their local community with discoverability, credibility, and quality of service at the forefront, both in respect to the platform and the provider offerings.

DISCOVERABILITY

While many platforms, namely Meetup.com, Craigslist, and Facebook groups, have a common goal of providing an online space for people to connect, and potentially meet offline, over shared interests, there is variation in the degree of discoverability, meaning easily discoverable content, or in this context, resource persons, across these properties. Discoverability on these sites typically takes shape in the form of information organization and retrieval through search, similar profiles or groups, tagging and recommendations. They are not, however, specific to creative-living, and the profiles and groups often deemed worthy of promotion are based on popularity among an aggregate of the users or generated by the input the specific user provides the system. Thus, searching and pinpointing a specific person for tacit knowledge exchange can be somewhat cumbersome. However, sites like

Clarity.fm, Google Helpouts and Pearl do peg themselves as platforms for obtaining advice or guidance from experts, providing high-level categories and similar profiles for discoverability. Though, the categories pertain mainly to business professionals or handymen, leaving out lifestyle verticals. Google Helpouts similarly provide categories and highlight creative-living verticals.

COMMUNICATION EXCHANGE

These platforms connect people through less rich modes of communication, often through forums, online chat, phone or video, rather than in-person. Lean media is best for communicating more routine, unequivocal information, while non-routine, equivocal information should be handled through richer media since it allows for more cues and data to be interpreted in hopes of obtaining a clear understanding (Daft & Lengel, 1986). TakeLessons is one of the few online marketplaces connecting people who want to take a lesson with a teacher in-person. The site offers teachers the opportunity to conduct lessons online too, however, this is at the discretion of the instructor. While it offers some lifestyle-learning opportunities with instructors, it mainly specializes in academic subjects, music and performing arts. Aside from music and performing arts, TakeLessons largely supplies tutors with expertise in explicit knowledge areas, which one can learn in a formal environment, from books, or more recently, massive open online courses.

CREDIBILITY

The aforementioned platforms do foster credibility. According to credibility researchers, and for the sake of a definition within context of the project, credibility is a concept comprised of trustworthiness and expertise (Hilligoss & Rieh, 2008; Hovland et al., 1953). Both of these dimensions can used to assess the credibility of a person. The Elaboration Likelihood Model (ELM) is a framework for understanding the attitudinal changes people have when confronted with a message or its source. The framework suggests the quality of the message or the peripheral cues, signals in the form of heuristics and not core to the message or argument, can be altered to influence change in perception of credibility. In addition, the framework asserts individuals utilize content cues or signals peripheral to the content to aid in decision-making (Petty & Cacioppo, 1981, 1986; Hilligoss & Rieh, 2008) While this framework originally manifested in context of persuasive messages, it has also been applied to determine credibility in context of information-seeking.

Piggybacking off of the ELM model, further research has found people utilizing peripheral cues in assessing the credibility of websites. Aesthetic-based website heuristics, including a clean, professional-quality layout, in addition to peripheral sources cues -- affiliation, background of the source plus friends and family recommending the

information -- and information object cues -- the appearance and presentation and tone of the content on the site influence individuals' assessments of credibility (Hilligoss & Rieh, 2008).

While some of these sites foster a sense of credibility, it again varies between platforms. Craigslist lacks in comparison to Meetup.com, Facebook, Google HelpOuts, and TakeLessons in terms of layout and professional design. As far as peripheral source cues, most of the platforms provide ratings, typically in a one-dimensional star format, rather than a faceted set of criteria. However, most of them provide external links for background information about the group or provider, though, it is inconsistent and varies depending on the site. Apart from Facebook and Meetup.com, none of the recommendations or purchases from people within a user's social circle are transparent or surfaced in a prominent manner, therefore possibly minimizing credibility and the potential for transaction. In terms of information object cues, appearance, presentation and tone, each platform has a unique appearance of content, usually with a unified voice. However, the tone can be vary across sites, and can be muddled with the language filtered in from users, therefore creating an emotional effect on the interaction to different degrees.

CREDIBILITY OF A PERSON

While the sites themselves possess a certain level of credibility in the eyes of information-seekers on the web, the individuals or groups promoted on them also have means of fostering credibility, or trustworthiness and expertise, through the affordances of the technology and the ways it's designed. Often times, when engaging with a stranger, people minimize risk by first collecting information before the in-person interaction. In-person communication provides more opportunities for reading social information—signals (e.g. physical characteristics) and cues (e.g. body language, gesture, inflection, etc.) -- in an attempt to understand risk. However, in the context of computer-mediated interactions, the technology does not offer the same affordances for conveying the nuanced information of an in-person interaction. Social proxies, like profile information, photos, transparent price, location and related, external links to other indicators of identity (i.e. person website, social identity on networking platforms) within information systems can help facilitate trust and reduce risk in preparation of the interaction on or offline.

HeroTime addresses solving some of these problems, as it's an interest-based, creative-living marketplace connecting people wanting to learn a lifestyle activity, or individuals who simply need a bit of help accelerating the learning curve of one, with passionate, skilled enthusiasts within a local community looking to showcase their mastery and, as a result, gain a sense of pride in the things they know best. The HeroTime application facilitates easy online discovery alongside faceted ratings and face-to-face lessons with evangelists in consumers' social circles and local communities to maximize the chances of a smooth, trusted exchange of tacit knowledge.

V. RESEARCH

The journey to researching, designing and developing HeroTime has been highly iterative. At the beginning, the team started investigating the needs for technologies supporting freelancers. The changes in the structure of the modern economy after the Great Recession has no doubt affected the workforce and has given rise to the contingent workers, people who need supplemental income, and the unemployed. Contingent workers -- people who are working outside of traditional 9-to-5 full-time employment -- already make for 25 percent of workforce in the U.S (Intuit). The number is expected to grow to 40% over next seven years. Other people need supplementary income in order to make ends meet. Finally, a lot of people are stuck in long-term unemployment status. Give this notion, the team conducted a survey of the technological platforms supporting these groups with the ultimate intention of helping people find the market for their skills in addition to empowering these individuals to take control of the short-term opportunities around them at local and hyperlocal level with people in need of their services all while facilitating trust and reducing risk.

COMPETITIVE ANALYSIS: PART I

First, our investigation focused on platforms connecting entrepreneurs, freelancers, and skilled laborers with those in need of their services. While the online gig economy caters to many markets, we discovered the platforms to be siloed, with each focusing on a specific type or set of jobs. The platforms diverged, however, most prominently into two categories: a) skilled and b) menial, task-based work.

Most of the skilled services follow a single ‘vertical’, allowing for specialization in a specific industry. We discovered professional freelance-based platforms, namely eLance and oDesk, connecting people and companies with a pool of outsourced talent anywhere in the world. In addition, other creative-class platforms cropped up, such as Thumbtack and Zaarly, focusing on mainly project-based services, including photography, interior design, cooking, among others.

Local services typically focused on task-based jobs, requiring little expertise. TaskRabbit, Fivver and Angie’s List emerged as the central resources for connecting people with individuals willing to complete menial tasks (i.e. cleaning, running errands, etc.) for often-times low wages.

However, we noticed products are tailored toward specific industries (e.g. oDesk serves web and software development and design) instead of providing an industry neutral-platform for marketing, booking and billing, and saw this as an opportunity. In addition, we concluded many of them are project-based or require quotes from the service providers (e.g. Elance, Thumbtack) and are not structured around the billable hour. We found they’re

localized (e.g. Angie's List compiles local services and reviews by city); and lack a time-management booking tool for easy transactions.

Naively, we imagined HeroTime as a vertically agnostic platform, differentiating itself from the aforementioned platforms as an online community marketplace for billable hours including marketing, booking, and billing tools for anyone who needs an alternative revenue stream.

After having productive and constructive discussions with knowledgeable people in the academic and business communities, we realized we needed a change in direction. The "one-size-fits-all approach" we envisioned couldn't meet the users' needs within every vertical, so we scoped the concept down. We concluded the marketplaces we surveyed do not provide access to niche skill sets for individuals geared specifically toward lifestyle services, and moved onto a new phrase in determining a place in the market.

COMPETITIVE ANALYSIS: PART II

We then executed a competitive analysis in hopes of getting an overview of the current online platforms focused on supporting lifestyle services, in addition to the features and solutions they support. The findings of this analysis helped us understand the ways we could improve the vulnerabilities of these current solutions as well as highlight possible opportunity areas in our product design.

We began with a wide-breadth search of platforms, and found approximately 25 to 30 potential resources. For scoping purposes, we created a four-part test each solution had to satisfy to be considered, which included:

1. The service connected people looking for at least one of the following:

    a) career change
    b) common interests
    c) lifestyle learning
    d) advice
    e) experience

2. Enabled an educational aspect between a mentor and a mentee, or person-to-person interaction.
3. It's not a cleaning, repair or handyman service or listing.
4. Sellers have core competencies that at least partially fall into the "lifestyle" categories:
    a) Art & Design
    b) Beauty & Style

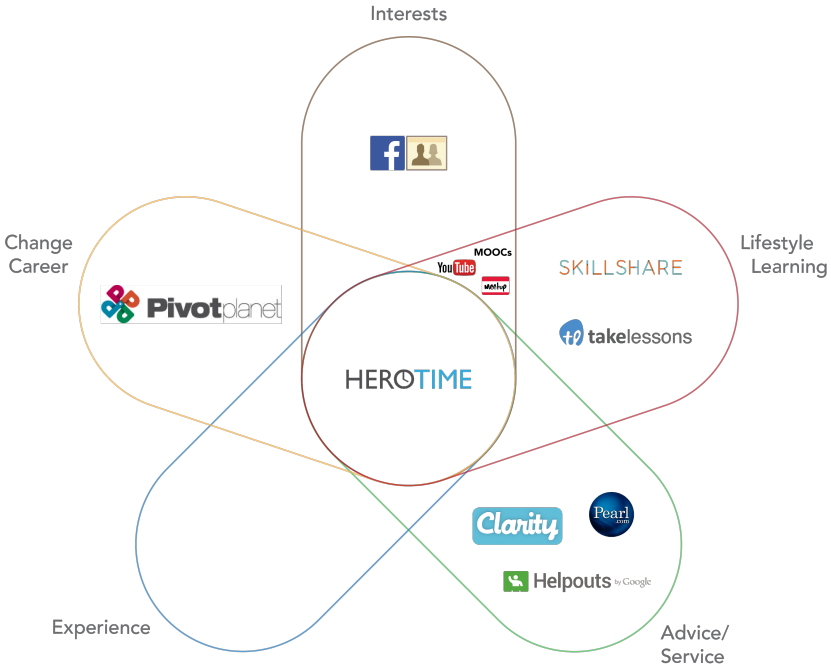
c) Food
d) Gaming
e) Home & Garden
f) Music
g) Language
h) Spirituality
i) Sports & Wellness
j) Technology

By applying this test to our initial search results, we narrowed down the available solutions to these eight (8) offerings: Facebook Groups, Meetup.com, Craigslist, PivotPlanet, TakeLessons, Clarity, and Google Helpouts. We then categorized competitors according to the general types of services they provide. For this exercise, we used the same categories as criteria one of the four-part test, and discovered our core idea fell into all of these categories.

Next we executed a feature audit on the aforementioned online properties. As a first step, we determined a list of specific features providing value to the experiences of connecting with people online, searching for lifestyle-skill providers and booking them. We divided up the competitors and spent time with each of their services, checking if each feature was supported, unsupported or if it was unclear. The feature matrix we created showcases the platform assets we tested for and summarizes our results.

COMPARATIVE ANALYSIS FINDINGS

In regards to feature sets, Google HelpOuts provides most of the competitive offerings, however, it connects real people for online meetings, rather than in-person. TakeLessons, on the other hand, offer both online or in-person lessons depending on the instructor. Therefore, based on the findings from the



Competitor feature analysis

competitive analysis, we concluded there was space in the lifestyle-learning, creative-living marketplace to help people make a career change, meet people with common interests, improve a lifestyle, seek advice about a creative-living activity or experience one in-person. In addition, we discovered an opportunity to outperform services that connect users for in-person meetings, such as Meetup.com and Craigslist, by providing superior scheduling, booking and payment systems plus mechanisms for facilitating credibility and quality of work in hopes of increasing the likelihood they'd meet in-person in addition to fostering a creative community at a local level.

INTERVIEWS

In order to fully understand the journey people took to find lifestyle-skill providers we decided to conduct one-on-one interviews. We conducted these interviews remotely via Google+ Hangouts, UberConference, or in-person on the UC Berkeley campus with people who are learning a lifestyle skill or had attempted to learn one within the past year.

We used affinity diagramming to organize information from the interviews

TARGET PROFILE

In order to capture input from our target demographic, we created a participant screener and promoted it through our social networks (see Appendix A & B). We were particularly interested in understanding the process people went through to learn a lifestyle skill and wanted to focus on those who had tried to find or found a resource person online, whether they followed through with the in-person interaction or not. All the participants we interviewed were between the ages of 18 to 35 and had learned a lifestyle activity with the help online resources.

We had three (3) main goals when formulating our interview questions:

	HEROTIME				craigslist	Pivotplanet	takelessons	Helpouts
OAuth login	🟢	🟢	🟢	🔴	🔴	🟢	🔴	🟢
Geographic localization	🔴	🔴	🟡	🟢	🔴	🟢	🔴	🔴
Search functionality	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
Social graph integration	🔴	🟢	🟢	🔴	🔴	🔴	🔴	🟡
Both client and provider profiles	🟢	🟢	🟢	🔴	🔴	🟢	🟢	🟢
Links to social networks on profiles	🟢	🟢	🟢	🟡	🟢	🔴	🔴	🟢
Open calendar / availability	🔴	🔴	🟡	🔴	🔴	🟢	🟡	🟢
Reviews / ratings	🟢	🔴	🟡	🔴	🟢	🟢	🟢	🟢
Similar providers	🟢	🔴	🟢	🟡	🟢	🟢	🔴	🟢
Scheduling	🟢	🟢	🔴	🔴	🟢	🟢	🟡	🟢
Negotiations	🟢	🔴	🔴	🟢	🔴	🔴	🔴	🔴
Messaging system	🟢	🟢	🟢	🟢	🟢	🟢	🟢	🟢
Payment options	🟢	🔴	🔴	🔴	🟢	🟢	🔴	🟢
Service pay guarantee	🔴	🔴	🔴	🔴	🟢	🟢	🟢	🟢
Background check	🔴	🔴	🔴	🔴	🟢	🟢	🔴	🔴

Overview of the competitor analysis findings

Goal 1: To understand how individuals went about looking for a lifestyle-skill provider.

Goal 2: To know how people gauged credibility of online resources.

Goal 3: To understand how people evaluated credibility of lifestyle-skill providers and the promoted service quality on site.

In total, we conducted eight (8) user interviews. All of the interviewees had variation in locating the lifestyle-skill provider, or resource person, they needed, so we had to adjust our questioning throughout the interviews. After completion of the interviews, we consolidated all the data and we created into an affinity diagram to organize the information and focus our attention on emerging themes.

INTERVIEW FINDINGS

From this process we were able to uncover key motivations, expectations and indicators of site credibility and trustworthiness of providers as individuals tried searching for help online.

MOTIVATIONS

We found people were motivated to search for help for mainly three (3) reasons: 1) when they got stuck somewhere along the way and explicit online resource no longer provided assistance; 2) they were motivated by their need for self-improvement; and 3) the need to cultivate a fun, shared learning experience with someone.

One interviewee explained his motivations for trying to learn latte art, despite his inability to find a resource person, saying:

> *"I really wanted to learn [latte art]. I was just driven, so it became a little bit of an obsession to learn this skill. It was a skill I wanted, mainly just for myself and because it looked cool. I also I wanted to show off to my girlfriend and friends."*

Another interviewee wanted the skill of picture-framing because he wanted to show off his artwork and save money, but got stuck and didn't know where to turn, saying:

> *"I had been really frustrated with the number of projects I have left half done because I get stuck on them and don't know where to look for help. Like the time I spent a bunch of money on a matte cutter to frame*

my own pictures, and I needed someone to come over and show me how it's done. I wanted to save money and have a new skill."

One interviewee planned on taking dance lessons with her fiancé, saying:

"We thought dancing looked fun when we saw other couples doing it at weddings. We decided to learn because it's fun, and so we could show off at our own wedding."

DISCOVERABILITY

We discovered the interviewees begin their search ultimately at Google, often times inputting the activity and their respective zip code, winding up on other platforms or meeting a dead-end. In the interviews, people expressed feelings of being overwhelmed, frustrated and irritated by the search process.

One participant suggested he spent more time searching than learning, saying:

"Searching is very frustrating and time consuming. Ultimately the learning process isn't very difficult, but to get me somewhere where I can learn it takes 95 percent of the time."

Search is difficult for people because there is no central place to search for lifestyle-skill providers, with one interviewee saying:

"I want a coach who is available when I need it and to help me with my interest. I basically wanted help for me to learn it faster. I spend most of my time trying to find the information not learning from the information."

Our interviewees sifted through a lot of irrelevant information first before they could find quality resources, if at all.

"The available options for finding a picture-framing mentor were messy, confusing and not specific enough for my needs -- it was difficult to navigate through the noise. Ultimately, I gave up."

SITE CREDIBILITY

We found people judge trustworthiness of a site based on the consistency of its design, ease of navigation, intuitive information organization, and the overall cleanliness and simplicity of the user interface.

Easy Navigation

One participant viewed trustworthiness of a site based on ease of use, saying:

> *"When a site has a really bad UI, it kind of brings the trust level down because it is hard to use. Like when it's just janky."*

Information Organization

When asked about how an interviewee evaluates credibility of a site, she said:

> *"I think when it's information is organized and it's user friendly."*

Consistent Format

Another interviewee expressed she gauged credibility when the site's content remained relatively consist in length and spacing, saying:

> *"When I search for something on Craigslist, it's really disorienting because every listing is spaced differently. Every ad is has different spelling; and there's spelling mistakes and it's all really confusing. People don't spend enough time or put in enough effort whereas on GumTree, I feel like people spend more time to make the ads look nicer."*

Look-and-Feel

Although the look-and-feel of a site is highly subjective, one interviewee commented on presentation and her ability to gather information on a site she used as a launchpad for booking a lifestyle-skills provider, saying:

> *"I judge whether or not something is legit based on how nice the website it. ... It wasn't a single page with a phone number on it, you could get information from it and navigate."*

Another interviewee couldn't put her finger on the sole reason, but alluded to the fact that layout and color palette connotated professionalism, saying:

> *"Craigslist sketches me out for some reason, but GumTree seems more professional. I think they've done a good website design job, with a nice color palette, of green, gray and white. ... It's casual, but somehow I can tell it's serious. "*

Social Recommendations

People assessed the trustworthiness of sites when a recommendation came from friends and family, with one interviewee mentioning:

> *"I heard about it from word of mouth from my family. I knew it was really safe, and it wasn't anything to be skeptical about."*

PROVIDER CREDIBILITY

Along with the need to gauge a site's credibility, users also expressed indicators of trust signaled from the providers. Ultimately, this made transactions occur more frequently for our interviewees who found a resource person. Interviewees found high-quality profile pictures, adequate and authentic background information, experience level, references to their work, in addition to ratings and reviews helpful when discerning provider credibility.

Photos

Interviewees also relied upon the photos to gauge credibility of the provider, saying:

> *"I really like that I could see a lot of pictures of the studio space."*

Background Information

One interviewee suggested she gauged credibility in the instructor she found in a listing based on his authentic background, saying:

> *"I was trying to learn the djembe drum, and I came across an instructor from Guinea in West Africa, and that's where the drum originated from. I was interested in learning from him right away because a bunch of other results were English university professors or teenagers."*

When an interviewee came across a blank advertisement, she expressed:

> *"Some options for instructors were totally blank, and I thought that was a bit strange. There was no other description other than "djembe class" with a location and a phone number. When there's no description at all, that was a bit surprising. I was really surprised to see how little instructors say about themselves, and for me, I always wanted to know a little background or their credentials."*

External Links

One interviewee also looked at the instructors work prior to scheduling a lesson, saying:

> *"He had links to two CDs that he's been apart of. He also had links to classes he's taught in other U.K. cities, so it seemed like he was pretty experienced and knew what he was doing. … I checked out the links and they seemed legit enough to book the lesson."*

Reviews

They also valued provider recommendations from their personal social networks. One participant discussed choosing a provider based on social recommendations and also quantity reviews, mentioning:

> "If someone I know has done it, that helps a lot. I usually would look at someone with hundreds of reviews. You can fake five reviews, but you can't fake a hundred."

Additionally, one interviewee, valued the context discussed within the reviews and how it related to her yearning to learn dance, saying:

> *"I checked out the reviews, and people seemed pretty happy with the dance instructor. These people used the person for the same reasons we were looking for her."*

Social Recommendations

Interviewees commented that they held their friends and family's recommendations about lifestyle-skill providers in high regard, saying:

> *"We had friends use the instructor for the same thing, and I felt comfortable initiating the contact."*

Localization

For the interviewees who found and booked a lesson with an instructor, location was a crucial factor, with two subject elucidating on this point, saying:

> *"Being nearby was important because it would be convenient for us."*
>
> *"We wanted something that was a 10-minute drive, not something that was two hours away."*

After synthesizing the interview data, we incorporated three key aspects into the designs.

- **Create a central platform for people to find local lifestyle-skill providers.** We concluded people need a repository of creative-living providers, and by developing it it would alleviate the overwhelming and frustrating experience individuals have when they start their search process and jump from site to site for relevant results to find a resource person when they need help.

- **Incorporate social graph to facilitate trust.** We heard from multiple interviewees social recommendations carry a lot of weight. By including social graph, friend and family reviews and recommendations will be transparent to the users.

- **Design a user interface balancing professionalism and an easy user experience.** The site should have clear and consistent design and functionality as well as organized search results, dynamic pages and straightforward menu bars and navigation. In addition, the design should allow the lifestyle-skill providers the opportunity to provide enough background information, showcasing qualifications and experience, and high-quality profile pictures. In general, the background information allowed should be capped at a certain character count to keep the profile design relatively consistent and clean.

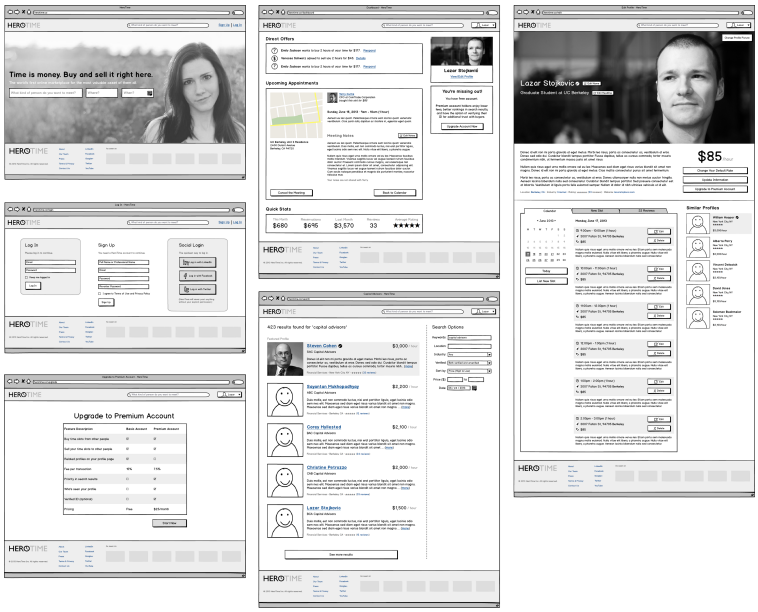
VI. USER INTERFACE DESIGN

Designing HeroTime was a highly iterative process that went in parallel to our research. In the earliest stages, it is fair to say that all of our design artifacts were based on our subjective assumptions and readings of empirical and theoretical research; later, as we learned more and more from our qualitative research, we changed, revised, and tweaked design as necessary.

INITIAL ASSUMPTIONS

As we have mentioned earlier, our team's early pre-research phase of investigation focused on technologies supporting freelancers who operated in-person. At that point, we still have not had discovered that lifestyle-learning was the niche that we would end up concentrating on. We were just getting acquainted with the problem space in general and exploring information necessary for laying foundation for our future activities.

Nevertheless, based on what we knew at this point, our observation was that there was no convenient all-in-one online solution for discovering, booking, and billing in-person appointments with freelancing experts — or, as Christine succinctly put it — "Amazon of skill sets". We assumed people would be willing to transparently put their professional expertise and hourly rates on their profiles (they were already doing the former on LinkedIn and the latter on Craigslist, after all), as well as be ready to buy and sell time slots appointments online. These assumptions were confirmed when we informally interviewed lawyers, businessmen, marketing managers, and professional athletes. We envisioned HeroTime as being that online marketplace with integrated booking tools that was absent from the market. We also assumed most people would perform search on their computers, so we initially focused on building the website only.



Our first Balsamiq wireframes

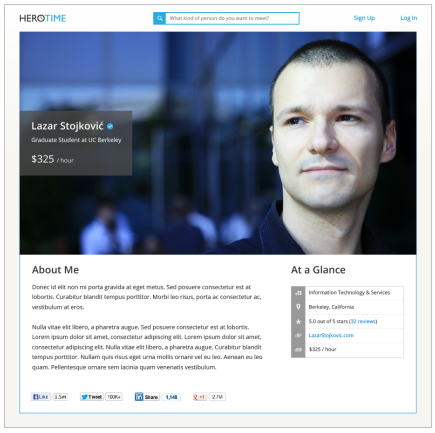
WIREFRAMES

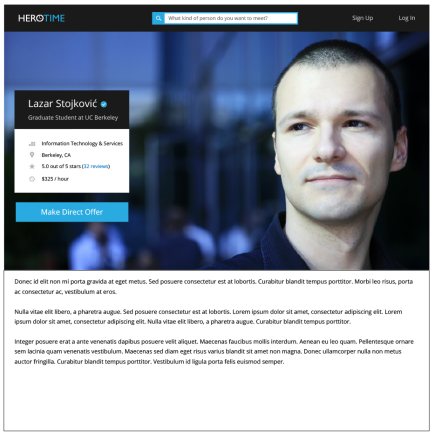
Next, the team did a series of low-fidelity paper sketches in order to define what

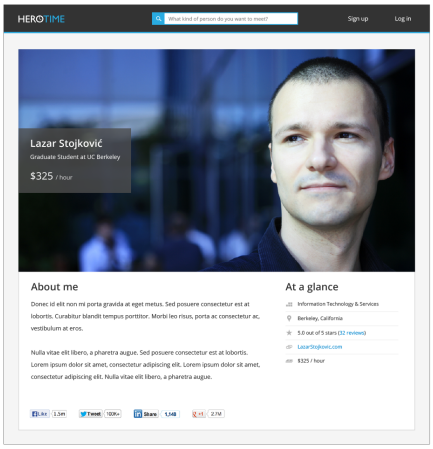
HeroTime's features and key flows might look like. As we were just starting the aforementioned skill vs. task analysis of our research and, hence, still operating mostly on subjective assumptions, we decided to take a step to make our design artifacts at least a little bit less biased. The sketches were turned into interactive six-page wireframe using Balsamiq and we went on to perform nine (9) informal usability tests. Thanks to the feedback, we ended up revising the original design to address major pain points encountered during the process (e.g. introduce the ability to make direct offers to sellers instead of just passively choosing from time slots posted by them as available).

VISUAL DESIGN

By the time we reached the visual design stage, results of our skill vs. task analysis suggested we should better scope the overall project. We discovered that HeroTime would not be a general freelancing website, but rather a specialized lifestyle-learning service or creative-living marketplace. We quickly scrapped some fairly conservative visual designs with which we hoped to attract business community in favor of a much livelier, modern flat design. Our new direction appealed to youth culture and emphasized high-quality photos, definitely befitting more an image of an experiential knowledge







Some of the iterations of the Profile page

marketplace for creative living that was unambiguously emerging from our research.

We discussed our visual design direction with several designers, including Damjan Stanković, to get their opinions. The valuable feedback we received ultimately helped us shape better visuals.
Another important addition at this stage was responsive design. As HeroTime's target user morphed from businessmen and professionals we initially had in mind to young, hip individuals interested in learning niche lifestyle activities, it was obvious that our approach to mobile had to change, too. With the smartphone being a standard fixture in young people's lives, HeroTime just couldn't afford to be an app built for desktop resolutions only. Having no resources to develop native mobile apps for either iOS or Android at this stage, our team decided on making HeroTime's design responsive by using CSS media queries.

Despite the fact that we had already started working on technical implementation by this point, numerous constraints of graduate life made sure we could not put a live app in front of the subjects of our April usability tests. We settled for Marvel, another prototyping tool, for the occasion.

USABILITY TESTING AND ITERATION

From there, we designed a task-oriented usability test paired with a think-aloud walkthrough in hopes of answering the following research goals on our new prototype focused on lifestyle learning.

Goal 1: Evaluate the usability of the website's most recent designs.
We assumed the prototype would show markedly strong improvement over previous designs.

Goal 2: Determine how the users evaluated the site's credibility.
We assumed the participants would deem the site as credible, or trustworthy, given that it has been designed with a clean, vibrant layout and uses clear, straightforward language.

Goal 3: Gauge how participants determined the credibility of the lifestyle-skill providers on site.
We assumed the participants would determine the credibility, or trustworthiness, of the lifestyle-skill providers based on the photo quality, price, ratings, reviews, background experience and established reputations available in the form of a personal website link external to HeroTime.

Goal 4: Understand how participants determined a lifestyle-skill provider's service quality over others.

We assumed the users would gauge quality of service based on the ratings and reviews available on the seller's profile.

TARGET PROFILE

We recruited our participants through a screener we promoted within our social networks (see Appendix A & B). However, after experiencing a low-response rate in addition to scheduling conflicts from the screener respondents, we switched to the friends and family method. The final group of individuals participating in the usability tests consisted of four (4) people (3 men, 1 woman), each having tried or learned a lifestyle activity over the course of their lives, instead of within the past year. Each participant was between the age of 18 and 35 and affiliated with UC Berkeley in some capacity. They were all first-time users of HeroTime, and possessed a mid-level to high technological competence.

TEST LOGISTICS

The tests took place in a quiet area in South Hall in mid-April 2014. Each participant was greeted by the facilitator and was instructed to take a seat. The facilitator explained the usability process using the test script as a guide (Appendix E) and provided consent forms (Appendix F) for the participants to sign before recording the test. The participant was seated at a computer with HeroTime pre-loaded on the screen in a high-fidelity, interactive prototype format, powered by Marvel. The choice of an interactive prototype made sense as the team yearned for feedback on the most recent iterations before dedicating valuable resources and time to implementation. The facilitator began recording the session once the participant consented to the terms.

RESEARCH TASKS

The usability test consisted of three (3) realistic tasks contextualized by a scenario (see Appendix E). We asked the participants to put themselves in the shoes of an individual, a persona, who has spent time and energy learning how make latte art. Participants were to imagine that they had reached a "roadblock" in their quest to learn latte art, and are in the midst of seeking out help to perfect the craft. We decided on latte art as it is a quintessential, niche lifestyle scenario that could be offered on the site. In addition it is an engaging topic for the participant.

The team members decided on these main tasks as they are the most crucial aspects of the site. Whether a person is new to HeroTime and is seeking to learn a new lifestyle activity or requires the assistance of someone to

help with an activity already in progress, the user must do these actions otherwise the site will not serve its core purpose.

Considering task 3 required the user to interact with the prototype's form, we supplied a printed out version of the form as a workaround. This helped us get an idea of what the users would do if the site was live.

i. Join the site.
ii. Find someone who can help you with latte art. In doing so, please decide on a provider of your choice.
iii. Book the provider for assistance at a time that's convenient for you.

TASK SUCCESS CRITERIA

The criteria set forth consists of various actions participants could've taken to complete the task successfully (Appendix G).

ISSUE SEVERITY

The team worked to discern the severity of the tasks and provide recommendations for the alpha release. In addition, the team adopted a severity scale for classifying the priority of each issue.

0: Critical - Do not ship until this is fixed.
1: High - Fix ASAP.
2: Medium - Fix as time permits.
3: Low - User want; not within the scope of alpha.

USABILITY FINDINGS

The team members compiled their individual notes from each live session and later analyzed the findings from the video recordings. A comprehensive, granular list of usability highlights has been compiled (Appendix H).

Positives

All of the participants successfully completed the tasks, finding the areas and features listed below useful for task completion.

- 3 of 4 users found the design attractive.
- 4 of 4 participants liked the search bar in the center of the homepage.
- 4 of 4 participants found the signup funnel quick and easy, as it didn't require too much information.
- 4 of 4 users liked the reviews to help narrow down their choice.
- 4 of 4 users found the transparent price helpful in their decision to select a seller.
- 4 of 4 participants liked when the profile photos showcased a seller in context of the activity he/she was promoting.

Areas for Improvement

We fixed all of these issues with a severity level of 1 before the release of the final project. Issues of severity of 2 or 3, we also believed were aspects worth surfacing for consideration in the next iteration of the site or if time permitted in this final project iteration.

1: High

- 3 of 4 participants were unclear about the goal of the site, particularly 1). what defined a lifestyle activity, 2). one-time gigs or ongoing engagement, and 3). tasks or lessons.
    - Flesh out homepage with two additional sections: 1). showcase all the lifestyle categories available; 2). provide an overview of the site's key features.

- 3 of 4 users didn't understand they could negotiate the initial listed price, and negatively reacted to the language.
    - Remove the language, and pre-fill the listing price with the seller's hourly rate. Further research is necessary.

- 3 of 4 participants expressed confusion about setting the location themselves and expected the meeting place to be set by the seller.
    - Pre-fill with the seller's preference. Further research is necessary.

- 4 of 4 users expressed confusion about the payment module's language.
    - Consider changing the pop-up to a separate checkout page with more explicit detail.

- 2 of 4 participants expressed uncertainty regarding the success of the payment after clicking the "Checkout" button.

    - Alert the user of the status (success or failure) of the checkout after the interaction is complete with a pop-up confirmation.

- 1 of 4 users was unsure if he could can cancel an appointment.
    - Include a “Cancel” button in context of the “pending proposals” and “appointments” modules. This button currently does not exist, and is necessary.

- 4 of 4 participants didn't realize they could also be sellers if they wanted to promote their lifestyle expertise.
    - Add concise language on the homepage alerting users they can sell their lifestyle skills, too. Consider creating a secondary signup flow for sellers as well.

2: Medium

- 2 of 4 users didn't notice the gray search bar against the black header bar.
    - Consider changing the search bar to white for a stark contrast against the black header.

- 2 of 4 participants were unsure about the structure of the meetings, and wanted more information.
    - Consider designing the profile so the seller can highlight a lesson plan or agenda.

- 2 of 4 users didn't understand what they should send in the message box.
    - Change the language, giving the buyer an example of what the context of a message should be. Perhaps, “Introduce yourself to [insert seller’s name]!”

3: Low

- 1 of 4 users didn't expect to see local results featured within his/her dashboard.
    - Further research is needed to understand the crucial aspects users need, want and expect in a dashboard.

- 2 of 4 participants expected more information about how to navigate the site.
    - Consider designing a first-time tutorial.

- 2 of 4 users expressed interest in wanting to see a portfolio of the seller.
    - Consider exploring options for sellers to showcase their work on site.

- 3 of 4 users expected a calendar view or a list of availabilities set by the seller.

- Consider designing a calendar view for sellers to select predefined availabilities, allowing buyers to select from them. Test with a lo-fi prototype for both the seller and buyer.

THINK-ALOUD FINDINGS

In addition to determining the usability of the designs, we also followed up each tasks with questions related to our research goals. Out of this exercise, many qualitative insights emerged and we incorporated some of them into the final designs.

Trustworthy Indicators of the Site

The participants expressed these credible aspects of the site:

Visual Layout

- *"Before I give my email to the site, I want to determine the credibility of the site. … I would look at the layout [of the site] and it looks good."* - P1

- *"Because the design is very clean, I would stay and explore more."* - P2

Sign-up Information

- *"I think the signup form is straightforward. If it was asking me for my phone number, then I would question its credibility."* - P1

Untrustworthy Indicators of the Site

However, users found these aspects set off markers of untrustworthiness:

About Us

- *"I'd Google the site and determine what it was about in order to learn about the organization."* - P1

Sign-up Information

- *"I am always skeptical of when [a website] wants my name for privacy and marketing reasons. I am cautious."* - P3

Price Negotiation

- *"'How much are you willing to pay?' [referring to the text for negotiation in the Schedule Appointment form] That seems a little strange. I would feel like this is a sketchy website, kinda like [it's] trying to get*

money out of me. … The nature of the question makes me feel like they are scamming me for money. That would be the main reason I would leave. - P1

- *"'How much are you willing to pay?' … This is a little off-putting…. It puts me on the defensive… and it's almost aggressive."*

Meeting Place

- *"'Where do you want to meet?' [referring to the text for meeting place in Schedule Appointment form] Okay, this is starting to feel like Craigslist. It's a little creepy… and feels less credible."* - P1

Payment

- *"I don't like not knowing how the payment is going to work."* - P2

Trustworthy Indicators of the Seller & Service Quality

Participants also indicated trustworthy cues of the seller and his/her service quality:

Photo

- *"I will click on these two people because they are baristas. They look like they know what they are doing" [referring to photos of the sellers in coffee shops.]* - P2

Tag Line

- *"The tag line is important because it can show personality."* - P2

Reviews

- *"I'll read the reviews to determine the person's credibility."* - P1
- *"I look for the reviews that sound genuine."* - P3
- *"I put a lot of value in reviews. … I would browse through them and see what people said about each person."* - P4
- *"Friends and family reviewing these people are important."* - P2

Price

- *"These two [sellers] seem professional because of the rate they are charging." [$35 and $25, respectively].* - P2

Personal Website

- *"I would browse her personal website so see the latte art that she's already done."* - P4

Portfolio

- *"The way they present themselves and the amount of effort put into the profile shows me how good they are… Having pictures of their work would be key."* - P2

- *"I would expect to see her work. I would think the person would want to display that stuff as soon as possible to you and be proud enough about that to be apart of his or her image."* - P3

Curriculum

- *"I think a guided curriculum speaks to the professionalism of a person… and that you put something together means you know what you're doing."* - P3

Untrustworthy Indicators of the Seller & Service Quality

However, despite the trustworthy elements, there were also signals of untrustworthiness:

Photo

- *"Frankly, I ruled this person out because he doesn't have a photo."* - P1
- *"I am not going to pick this guy because his picture is not in a coffee shop, and he's just a "coffee enthusiast", not an expert, and he has a low approval rating."* - P1
- *"He is sketchy because of no picture, headline and the words he's written."* - P2

We elucidated on these comments and incorporated much of the feedback into the final designs.

VII. TECHNICAL ARCHITECTURE

Our goal of building HeroTime was to build a safe, secure, and intuitive web application. When choosing technologies to build a website upon, our considerations included many factors and many trade-offs. Those decisions were heavily influenced by the team's resources and its skill-level with some technologies.

The technical skills can be learned, however, it requires a non-trivial time investment to develop expertise. Because each person on our team had some experience with Python and some Python web packages (e.g. Flask), we constructed our product around these, as the knowledge transfer and communication would be easier between team members. We also lacked money for services and would come to rely on free online services such as GitHub, Heroku, LinkedIn, Google Maps, SendGrid, Stripe, and Amazon Web Services (AWS). We were surprised at how many web-resources are available for free for low usage.

DESCRIPTION OF TECHNOLOGY STACK

HeroTime's architecture is as simple as we could make it. But no more simple than that.

Development

We used GitHub as a source code repository. Conveniently, it provided an issue tracker for bugs and features. As our system became more complex, we created a set of deployment scripts (run on AWS during system boot). We looked at using Junit for testing, but never implemented it or any testing framework. This is a high priority moving forward.

Hardware and the Back-End

The HeroTime server resides inside a AWS Virtual Private Cloud (VPC) using a multitude of web services. Our Virtual Linux server hosted on Amazon's Elastic Compute Cluster (EC2) serves dynamic pages using a combination of Apache and Flask. We use three levels of storage:

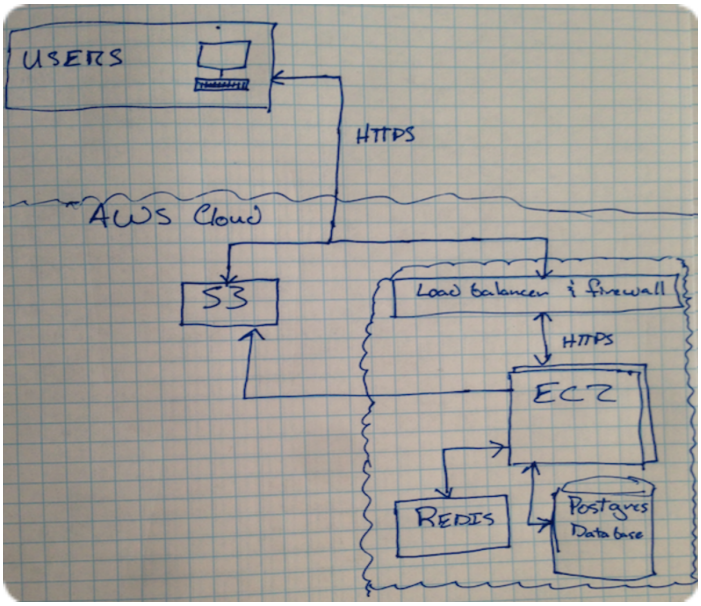
1. **Persistent files**, for example profile images, are stored on and served directly from Amazon's Simple Storage System (S3).
2. **Persistent user data**, user information such as name and location, are stored in a PostgreSQL database running on Amazon's Relational Database System (RDS). All information provided to users is mediated through HeroTime.

3. **Temporary storage**, which includes session information, is stored in Redis, a fast Key-Value caching service, running on Amazon's ElastiCache.

Our EC2 server is customized by Amazon's Elastic Beanstalk (EBS) to run our software stack. We wrote all the configurations and shell scripts for installing, configuring, and customizing software packages and infrastructure. A few software package we used include RabbitMQ, a robust event management and queuing service; SQLAlchemy, a general Object-Relational Mapping (ORM) for databases; and our Python servlet. The infrastructure included performing tasks such as installing an ssh-key so the team could perform maintenance and debug issues. Our servlet package required all our HTML templates, JavaScript code, images, etc. Once complete, this allowed the team to deploy by running a single command ('git aws.push'). While our AWS setup is fairly good, it required a lot of effort and debugging.

Name-server routing is handled by Amazon's Route53 (R53).

A High-level Sketch of the Architecture



The simple pencil sketch to the right shows the generic information flow around the system. Everything accessed behind the 'load balancer and firewall' is part of the virtual private cloud.

The Front End

The front-end is a set of documents, i.e. HTML pages, that can be rendered by a browser. We use of JavaScript to make the pages interactive and dynamic. This allows us to keep some information hidden from the user until it becomes useful and pertinent. We also make use of AJAX to create smooth interactions without reloading pages, especially those surrounding the lesson creation, acceptance, and cancellation.

HeroTime relies on external services for adding value and helping users complete tasks. Google Maps, Stripe, LinkedIn, and SendGrid are four services that users interact with directly. The users' interactions with Google Maps, Stripe, and LinkedIn occur on the HeroTime site to perform a task within that context

(e.g. LinkedIn's Open Authentication during signup and login and Stripe for processing online payments.) SendGrid provides a different interface for users by sending emails on our behalf to users, this can inform them of the state of a lesson request.

Design Considerations and Architecture

The design and architecture of any product is the creative execution of the the goals while acknowledging the team's resource constraints. We had a goal of a building an intuitive and secure platform for users. We also had to contend with common resource constraints. Our team lacked time, money, and expertise using web-technologies and frameworks. Put another way, we are making a web-service from scratch--something none of us has prior experience doing.

Trade-offs: Easy to use, Quality, or Cheap

We choose Python as our core back-end language and Flask as micro-framework. These choices allowed the entire team to take part in development. The simplicity of these as tools also helped the team get started. Similarly, we invested in Heroku as a server and database because it was fast to get up and running. As HeroTime grew more stable and Heroku could no longer easily provide some features, we shifted to AWS. Some features, like search, are a bare-bones implementations using case insensitive search over a set of database columns.

Intuitive

The most challenging questions to HeroTime's architecture was what was necessary for providing an intuitive experience. Sometimes, this means shifting the burden of saving and remembering information away from users and on to the HeroTime service. This was not a problem. Bigger issues were learning how to manipulate and tune software frameworks to provide the features that helped provide the user experience as designed. We also had to contend with user expectations. For example, once a user is logged-in and manually navigates to the signup or login page, should we forward them directly to their dashboard? Other times, the issue was providing a creating consistent and common-sense defaults that would be used across the site.

Secure

Our goal of user safety and security demanded that we 'bake-in' security. Thus, the site is accessed exclusively over Secure HTTP (i.e. https://herotime.co). Even though we are being frugal, as technology leaders, we want to set an example for other developers to use HTTPS everywhere. One benefit of using

AWS and VPC was its per-service firewalls. Lastly, we also made a conscious choice to look for services that reduce the user risk. We use Stripe to process credit card payments and eliminate HeroTime's need to save some personal information.

Robustness

The system is 'robust' if it can scale under an aggressive load. To this end, we tried to create a largely decoupled system devoid of a single point of failure. The move away from Heroku provided a number of key features. We began to use ELB to provide a dynamic load-balancing. This will create new systems EC2 instances when the number of active connections exceeds a threshold. We also moved other services, such as our database, to our VPC.

Privacy and Security

We have to balance user privacy with the inherent need for sharing information when making decisions. We've tried to cut a delicate balance. Some information needs to be publicly available, but we have the opportunity to reduce the granularity of that data. The date and location should be abstracted to a month and city or county. Meanwhile, other pertinent information cost, overall value, promptness, and communication should be available to help make decisions. As individuals decide to enter into an agreement, more information must be shared. We placed a lot of thought, supported by user research, into the context of the actions and if the information provided was necessary, very useful, or mildly useful.

From leaning on the I School community, we asked Victor Starostenko and Ashley DeSouza to perform security audits, penetration testing, and attack analysis. The report, filed in December 2013, found possible attack vectors in session management, user information could be leaked through abstractions, and concerns about database security. In January, all vulnerabilities were addressed and none of the vectors could be used.

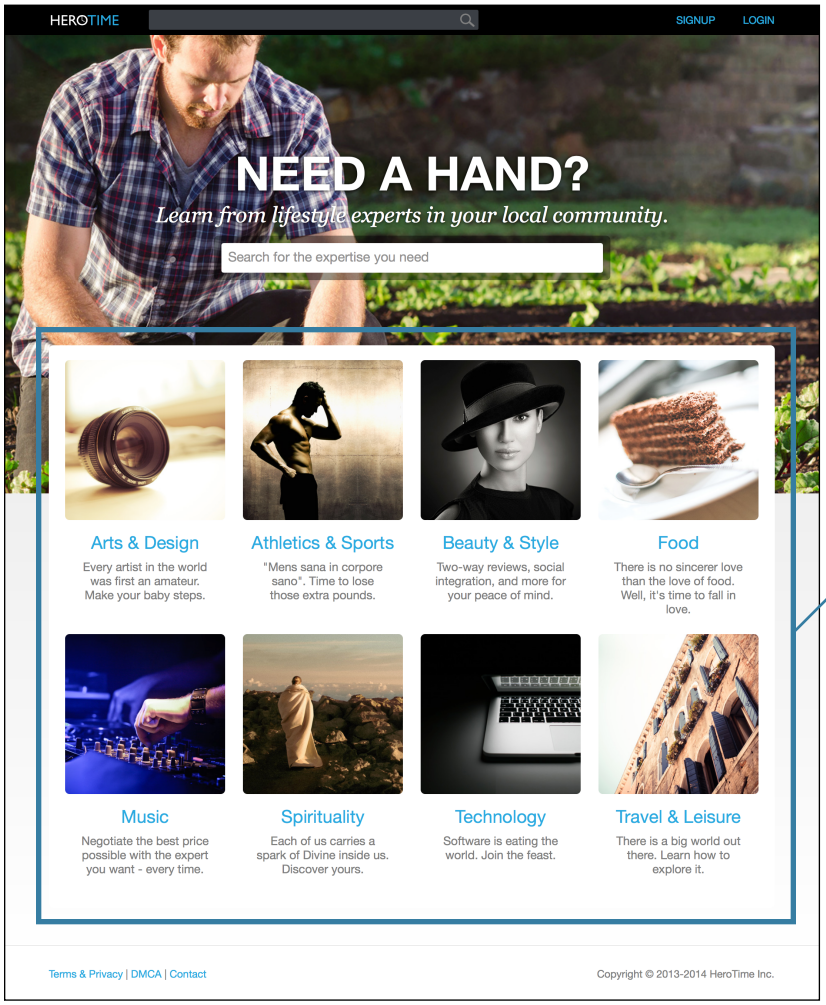
FUTURE DIRECTIONS

There are a number of small bugs and features that we would like to improve upon. For example, after creating an account using LinkedIn OAuth, does not force nor prompt the user to setup a password. There are a some user-actions -- e.g. deleting their account -- that currently require manual administrative interventions. In addition to those, there are a few larger goals such as using regression tests of individual components. Of course, there are other features we desired creating and testing but ran out of time. User-negotiation is one. Currently, this is a one

way, the seller accepts or declines. Ideally, there could be a tracked ‘conversation’ which helps users track the proposed meeting details.

VIII. FINAL DESIGN

In the final design, we focused on addressing discovery, website credibility, and provider credibility issues that we have identified over the course of our research.

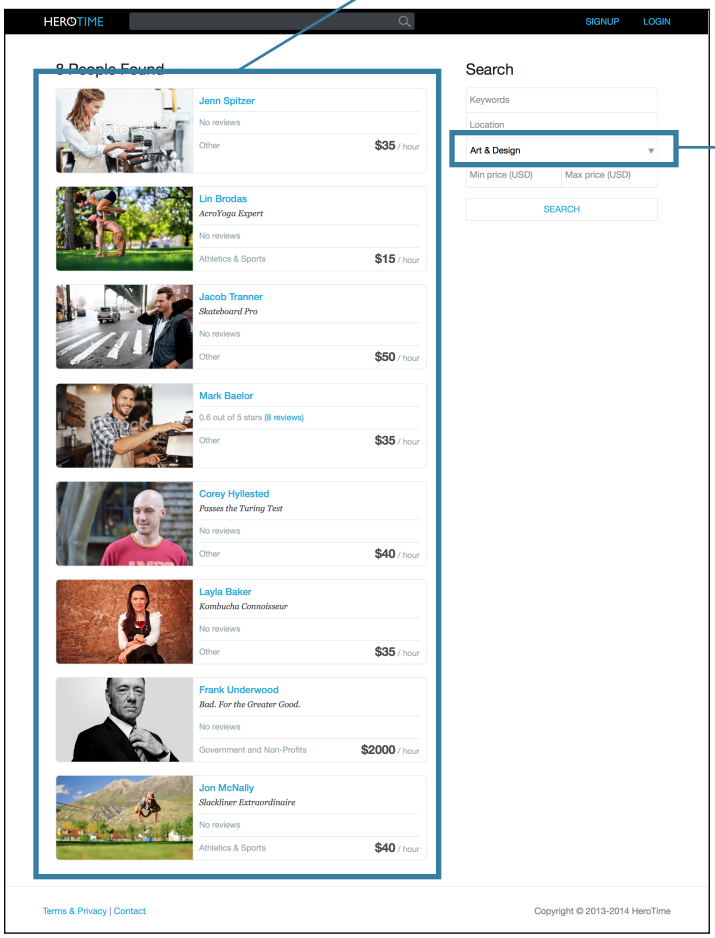


Discovery

For the user who may not be familiar with what lifestyle categories exist, we have provided a visual overview of all master categories on the website, as well as short blurbs.

Site Credibility

Search results are well organized and offer the user an easy way to find the lifestyle experts he need.



Discovery

Search options contain a filter for interest that can help the user discover experts in the lifestyle area of interest.

Site Credibility

All profiles have consistent format and are easy to navigate.

The look and feel is professional, but still casual.

Provider Credibility

Large images convey familiarity and friendliness of the provider.

All profiles contain transparent hourly rates visible to everyone, thus empowering the user to easily compare the providers at glance.

Social recommendations on the profile page are also visible, showing which of the user's friends have transacted with the provider in the past.

General area where the provider operates (e.g. San Francisco Bay Area) offers geographical context to the user.

Public portfolio goes beyond just the words in the main body of text to the left, giving a visual glimpse into the provider's capabilities.

Faceted reviews offer more information, allowing for high-quality evaluations.

IX. NEXT STEPS

While were were able to include designs and implementations into the final designs, there are certainly areas for improvement. Our research subjects provided valuable feedback about their needs and expectations, much of which our early designs and implementation were able to address. However, some of these issues remain unsolved in the final implementation.

ADDITIONAL USER RESEARCH

While we conducted informal interviews with several lifestyle-skill providers, we need to perform a full usability review of the HeroTime prototype with these individuals. We conducted considerable research with potential buyers of lifestyle lessons, the unique needs of dedicated sellers were not addressed in our prototype to the degree that we would have preferred. The decision to forego such research stemmed from our initial assumption that focusing on buyers alone could be sufficient. Our strategy was to build a platform that would turn these buyers into sellers themselves by creating a new lifestyle market for these amateur individuals' hobbies and skills. However, we eventually concluded that many of our users could be dedicated sellers -- professionals who are not new to giving lessons -- and thus their needs must be addressed in the site flow and layout.

BUILDING IN ADDITIONAL DISCOVERABILITY

To create exploration, it would be useful to have a fully functioning search that allow for options such as 'find people like this' and 'find unique skills in my friends-of-friends.' In addition, standard features like pagination (e.g. click for the next ten search results) would also increase discoverability. While our homepage supports discovering different creative-living categories, ultimately implementing landing pages for each category and highlighting the unique, niche lessons offered within each would also promote easy discoverability.

IMPROVING UNCERTAINTY

Based on our usability test observations, we need to do a better job of showing first-time users how to navigate and use the site. While a dedicated page flow for first-time users is a potential solution, the design should be constructed in a way that's clear and simple enough to learn quickly and without help. Given this, we need to conduct additional usability tests with low-fidelity prototypes.

Second, research participants often had uncertainties about the offerings of a lesson that may not have been clearly communicated by the seller. In many cases, these subjects expressed a desire to view a structured curriculum or detailed description of what the lesson would actually consist of. For instance, a buyer of cooking lessons may want to know whether the class will be more goal-oriented, i.e. simply completing a dish, or if it is more exploratory, discussing the effect of each particular ingredient. One potential idea to address this could be to encourage sellers to create a short video introducing themselves, their lesson, and what the buyer should expect to get out of it.

Relatedly, we should improve the reviews and information flow processes to allow buyers to clarify their own knowledge and expertise. Users looking a improve a skill set may be a novice, an amateur, or an expert, and including this information could reduce uncertainty for sellers as they decide whether to accept an offer or how to structure their lesson.

Finally, participants also did not feel in control of many site interactions. For instance, some users expressed a desire to know how long it would take to get a response to their lesson request. Other sites solve this problem with a statistical estimation, explaining that a seller "replies in 4 hours 70% of the time," or, more generally, "This user responds regularly." By offering these expectations, we can help the user feel more in control.

ADDRESSING SPECIFIC EXPECTATIONS

While we initially imagined HeroTime as a resource for one-time lessons between student and teacher, we have learned from our user research that some skills like music and language often involve longer-term relationships with a teacher. Therefore, we should build a recurring lessons mechanism into the site to address this need.

Lastly, our site currently makes all lessons "public" by default. We realize this setting could have negative consequences for users who wish their activity to remain private. Thus, we need to implement an 'incognito' setting which will ensure a meeting will not be visible on the site.

SUMMARY AND BIGGER PICTURE

Learning is a life-long process, and core to being human. We see a societal trend in people wanting to unplug from devices and developing more meaningful relationships and experiences with themselves and others. Over the next several years, we expect to see technology supporting this more readily, getting people off the computer and focusing on improving their lives. HeroTime is a platform for addressing this and making it easy to connect and learn from creative people within today the local vicinity. We believe HeroTime is a unique, but simple approach to bridging the online world with the offline while also giving people the opportunity to learn and showcase their passions, talents and interests together.

APPENDICES

APPENDIX A : SCREENER PROMOTION

Hi Everyone,
My research team at the University of California, Berkeley is seeking interesting people — like you — to participate in informational interviews. Our goals are to understand how people have experienced lifestyle services; and how those experiences could be improved.

Please fill out our participant screener to see if you qualify:https://www.surveymonkey.com/
All responses will be kept confidential.

If selected we will invite you to an interview, either at the UC Berkeley campus or via telephone. The entire process will take approximately one (1) hour. If you have any questions, please feel free to reply to this post or to [yourname]@berkeley.edu.

Thank you!

APPENDIX B : SCREENER QUESTIONS

1. Have you actively tried to learn one or more lifestyle activities or needed a lifestyle-related advice within the past year? (e.g. baking, silkscreening, gardening, or another activity in beauty, fashion, home, art, design, music, sports, gaming, technology, or language categories.)

   - Yes [Go to question No.2]
   - No [Thank, and terminate the screener.]

2. Which category does the activity belong? (Check all that apply.)

   - ❏ Art & Design
   - ❏ Beauty & Style
   - ❏ Food
   - ❏ Gaming
   - ❏ Home & Garden
   - ❏ Music
   - ❏ Language
   - ❏ Spirituality
   - ❏ Sports
   - ❏ Technology
   - ❏ Travel & Leisure
   - ❏ Wellness
   - ❏ Other

3. Which best describes how you attempted to learn/learned the activity? (Check all that apply.)

   - ❏ I used existing resources on the Internet
   - ❏ I used books, magazines, etc.
   - ❏ I joined a community with people who had a similar interest
   - ❏ I looked online but couldn't find anyone
   - ❏ I found someone through my personal network
   - ❏ I found a knowledgeable person online but didn't make contact
   - ❏ I found a knowledgeable person online and received assistance at no cost
   - ❏ I found a knowledgeable person online and purchased a lesson

Answer Type: Multi-Answer Select

4. Have you taken part in market research focusing on lifestyle skill-building within the past (6) six months?

- Yes [Thank, and terminate the screener.]
- No [Continue]
- I don't know [Thank, and terminate the screener.]

Answer Type: Single Select

5. Which best describes your age?

- 1 to 17 [Thank, and terminate the screener.]
- 18 to 24 [Continue]
- 25 to 40 [Continue]
- 41+ [Thank, and terminate the screener.]

Answer Type: Single Select

6. What is your gender?

- Male
- Female
- Other

Answer Type: Single Select

7. How would you classify yourself?

- Rather not say
- Hispanic
- Caucasian/White
- African American
- Indigenous or Aboriginal Person
- Asian/Pacific Islander
- Multiracial
- Other

Answer Type: Single Select

8. Which of the following best describes the area in which you live?

- Urban [Continue]
- Suburban [Continue]
- Rural [Thank, and terminate the screener.]

Answer Type: Single Select

9. How many hours per week do you use an Internet-connected device?

- 0 to 8 [Thank, and terminate the screener.]
- 9 to 15 [Continue]
- 16+ [Continue]

Answer Type: Single Select

10. We are recruiting participants to take part in a (1) hour interview or a (1) hour usability test. Please choose your preference:

- I would like to participate in an interview
- I would like to participate in product testing
- I have no preference

Answer Type: Single Select

11. The interview will be audio recorded, and the usability test audio and videotaped. You will be asked to sign a consent form. Are you willing to consent to being audio and/or videotaped?

- Yes [Continue]
- No [Continue]

12. What is your email address? (Please DO NOT include your password.)

Answer Type: Open Text

HEROTIME

Thank you for filling out our screener! If you meet the criteria for our study, a member of the research team will contact you over email to schedule a day and time.

APPENDIX C : INTERVIEW CONSENT FORM

STATEMENT OF INFORMED CONSENT

A group of students in the Needs and Usability Assessment class at the School of Information at UC Berkeley are conducting studies to understand people's experience using and/or finding Lifestyle Services.

If you volunteer to participate in this study, you will be asked to answer questions in a 1-on-1 interview. Your voice may be recorded. This material will be used for the class project. The audio recording will be transcribed and deleted within one (1) week of the interview.

This research poses no risk to you other than those normally encountered in daily life. All of the information from your session will be kept anonymous. We will not name you and when we discuss your answers in our assignments or any potential research publications. After the research is completed, we may save the anonymous notes for future use by ourselves or others.

Your participation in this research is voluntary, and you are free to refuse to participate or quit the interview at any time. Whether or not you chose to participate will have no bearing in relation to your standing in any department of UC Berkeley. If you have questions about the research, you may contact Maggie Law, usability practitioner and instructor for INFO 214: Needs & Usability at the University of California, Berkeley's School of Information, by electronic mail at mlaw.ischool@gmail.com.

You may keep a copy of this form for reference.

If you accept these terms, please write your initials and the date here:

INITIALS _____

DATE _____

APPENDIX D: INTERVIEW PROTOCOL

Hi [insert name],

Thank you for your willingness to participate in our research project. I am [insert name], and I will be interviewing you today. [Insert name] is also with us, and he/she will be taking notes throughout the interview.

My research team at the University of California, Berkeley, and I are interested in speaking to people - like you - to help us understand how people have experienced lifestyle-learning (e.g. baking, silkscreening, gardening, or another activity in beauty, fashion, home, art, design, music, sports, gaming, technology, or language categories.); and how those experiences could be improved.

Before we get started, I wanted to let you know there are no wrong answers here. Please feel free to speak honestly; you're not going to hurt our feelings.

Your participation in this research is completely voluntary. If you get tired and need to take a break, please let us know. You are welcome to skip any questions if you'd like, and if you want to stop at any time, you are free to do so.

We'd like to record the interview, meaning your voice, for the purpose of this class research assignment, with your permission. By doing so, it makes it easier for us to pay attention.

Provide a copy of the consent form to the participant. Allow him/her to read it and sign before moving forward with the interview. If the participant does not want to be recorded, move on with what he/she is comfortable doing.

If you have questions as we go along, please ask them.

Okay, let's get started!

1:1 INTERVIEW

1. **How would you define lifestyle skills provider?**

2. In the pre-screener, you noted you have tried to learn/learned or needed help with [insert activity]. Why did you decide to learn [insert activity]?

[Goal of Questions: Understand how they went about looking for a lifestyle provider.]

3. Did you reach out or try to reach out to someone for help at any point?
   - What triggered your search for that person?

4. Tell me about how you went about trying to find a lifestyle provider.
   - How did you find the experience?

5. Why did you decide to use [insert site]?
   - Why did you decide not to use the other site(s) you mentioned?

[Goal of Questions: Understand how they gauged the trustworthiness of the *site*.]

6. Think about the websites you've used to find someone to work with. Which ones are they?
   - How did you evaluate the trustworthiness of the site?
     - Why?

7. Can you recall a website that you trusted to find someone to work with in the past, but no longer do?
   - Tell me about what happened.
   - What would need to happen for them to make things right again for you?

[Only ask these questions if the person searched but couldn't find someone.]

8. When you were on [insert site], tell me how you went about finding the provider?
   - What did you find easy?
   - What did you find difficult?

[Goals of Questions: Understand how they evaluated the trustworthiness/reputation and quality of the provider on the site.]

9. What information did you look out for when you were perusing your options for providers?
   - If so, what information did you expect to see but didn't?

10. If you did, how did you narrow your search options?
    - What did you consider interesting compared to other providers?

[Ask these questions if the person found someone but didn't contact.]

11. What deterred you from contacting the provider?

[Ask these questions if the person bought time]

12. What information did you look for when determining you wanted to do business with the (specific) seller?
    - How did you determine the reputation of the provider?
    - How did you determine reliability of the provider?
    - How did you determine the the demeanor of the seller?
    - How did you determine the credibility of the seller?
    - How did you gauge the quality of the services the seller offered?

13. If choosing the provider wasn't a clear choice, what did you find questionable?
    - How long did you spend debating this?
    - What factors played a part in the final decision?
        - How?

14. Regarding a potential meeting with this person, is there anything that worried or scared you?

15. What were your expectations for the meeting based on your interaction online?
    - Was anything specifically promised to you by the seller?
    - If not, what gave you the impression that it would be offered?

16. What was the process of scheduling the service provider?

17. How did you decide on a meeting place?
    - Did they set the place or did you?
    - How did you feel about that?
    - Did you have a preference either way?

18. How did you determine the amount to pay the provider?
    - Were you given the option to negotiate service price?
    - Did you negotiate?
        - Why?
        - How did you feel negotiating?
    - When did you pay for the service?

19. What channels did you use to communicate with the provider?

- Was it anonymous?
- How would you describe the communication with the seller?

20. At what point in this whole process did the provider receive personal identifying information about you?
    - What personal information did the provider get?
    - Why was the information necessary?
    - How did you feel about that?

21. How would you describe the time leading up to meeting the person for the service?
    - What were your expectations?
    - Did you receive reminder notifications?
        - What form were those notifications sent?
    - What were your options for canceling the meeting?

22. Is there anything else you would like to add about the experience on the site?

Thank the participant for his/her cooperation and time.

APPENDIX E: TEST SCRIPT

Hi, my name is _____, and with me I also have _____, who is working with me on this project. She/He will be the notetaker today. We are master's students at the UC Berkeley School of Information. As you may already know, we're conducting research to understand people's experiences on HeroTime, a marketplace for buying skill wisdom, to make sure the site works as intended.

Today we will do a usability test on HeroTime. I'm going to ask you to try doing some specific tasks on our site, and I am going to ask you to think aloud as we go along. You should tell me what you're looking at, trying to do and thinking. The session should take approximately 30 minutes.

I have some information for you that I'd like to share with you before we begin.

The first thing I want to make clear is that we're testing the *site*, not you. You can't do anything wrong here; there are no wrong answers. In fact, if you run into any problems, that's really useful for us. Please feel free to speak honestly; you're not going to hurt our feelings.

Your participation in this research is completely voluntary. If you get tired and need to take a break, please let us know. You are welcome to skip any tasks if you'd like, and if you want to stop at any time, you are free to do so.

We'd like to record your what's happening on the screen, your face, and your voice for the purpose of this class research assignment, with your permission. By doing so, it makes it easier for us to pay attention and the recording will only be used to help us figure out how to improve the site for this class assignment.

Provide a copy of the consent form to the participant. Allow him/her to read it and sign before moving forward with the test. If the participant does not want to be recorded, move on with what he/she is comfortable doing.

If you have questions as we go along, please ask them. I may not be able to answer them right away, because we're interested to see how you use the site without another person's assistance. I will try to answer any questions you have at the end of the session. Also, if you need to take a break at any point, please let me know.

Do you have any questions so far?

Answer any questions the participant has about the session. If not, move forward with the test.

Okay, I'm going to ask you to try doing some specific tasks. I'm going to read each one out loud and give you a printed copy.

And again, as much as possible, it will help us if you can try to think out loud as you go along.

Hit the record buttons.

Task 0. Look at this site for 10 seconds

10 seconds later.

What do you think this site is about?

- Would you stay or leave?
    - Why?

Pre-Walkthrough Questions

1. Have you ever tried to learn a lifestyle skill?
    - What was it?
2. How did you go about it?
    - Tell me the steps you took.
3. How did it go?
    - At any point, did you seek out help from someone?
        - How did you find him/her?
        - What was easy about finding him/her?
        - What was difficult?

[Frame the usability test with the scenario-based task.]

You are learning a new activity -- latte art -- but you're having trouble making the design patterns. You search the Internet for resources, reading a few articles and watch YouTube videos, but nothing is helping you perfect the art of latte making. Fed up, you search Google, and arrive at HeroTime and want to see what it has to offer.

Task 1: Show us how you would join the site.

[Upon completion, ask these questions below.]

How did you find the experience?

- What do you think about the amount of information that's required to sign up?
- What did you expect after hitting the "signup" button?
- If anything, what did you not expect to happen?

Task 2: Show us how you would find someone who can help you with latte art. In doing so, please decide on a provider.

[Upon completion, ask these questions below.]

How did you find the experience?

- What did you think about the information presented on the person's profile?
    - What did you expect?
    - What did you not expect?
- What helped you narrow down your choice?
    - On which page did you view this info?
- Why did you pick the specific provider? Tell me what influenced your choice.
    - What's your interest level in this specific seller?
- What would you want to do next?

Task 3: Show us how you would go through with booking the provider for assistance.

<u>Have them fill out the printed form here</u>

How did you find the experience?

- If you were going to meet this person in real life, where would you feel comfortable meeting them?
- Why did you decide to pay [insert amount] for the service?
- Did you know you could negotiate the service fee?
- How did you feel negotiating the service fee?
    - Why?

What do you expect to happen after sending the proposal?

When do you expect to be charged?

How do you think a person with expertise could go about promoting him/herself on the site?

- What do you expect to see?
- Is it evident you can be a buy and a seller?

- Why/why not?

Is there anything else you would like to add?

APPENDIX F: STATEMENT OF INFORMED CONSENT

A group of students in the Needs and Usability Assessment class at the School of Information at UC Berkeley are conducting studies to understand people's experience using HeroTime.

If you volunteer to participate in this study, you will be asked to perform some tasks related to the online application, and to answer some questions. Your interactions with the computer will also be digitally recorded on video, audio and/or with still photographs. This material will be used for the class project and also be included in our professional portfolios for others to see and assess.

This research poses no risk to you other than those normally encountered in daily life. All of the information from your session will be kept anonymous. We will not name you and when we discuss your behavior in our assignments or any potential research publications. After the research is completed, we may save the anonymous notes for future use by ourselves or others.

Your participation in this research is voluntary, and you are free to refuse to participate or quit the experiment at any time. Whether or not you chose to participate will have no bearing in relation to your standing in any department of UC Berkeley. If you have questions about the research, you may contact Maggie Law, usability practitioner and instructor for the "INFO 214: Needs & Usability" class at the UC Berkeley's School of Information, by electronic mail at mlaw.ischool@gmail.com.

You may keep a copy of this form for reference.

If you accept these terms, please write your initials and the date here:

INITIALS _____

DATE _____

APPENDIX G: TASK SUCCESS CRITERIA

	1. Join the site.	2. Find someone who can help you with latte art. In doing so, please decide on a provider of your choice.	3. Book the provider of your choice for assistance.
Success Criteria: Option A	1) Go to the "Signup" link in the header 2) Insert information or verbalize it, then click "Join Now".	1) Verbalize the search criteria. 2) Click on the search icon. 3) Once on the Search page, click on the profile of the lifestyle-skills provider of choice.	1) Scroll down the page to the form field. 2) Fill out the form fields on the paper form provided with all the mandatory information. 3) Click "Send Your Offer" button. 4) Verbalize personal information. 5) Verbalize credit information for individual fields. 6) Click "Checkout" button.
Success Criteria: Option B	1) Go to the "Signup" link in the header. 2) Click on the LinkedIn single-sign on button. 3) Verbalize credentials. 4) Click "Allow Access."		

APPENDIX H: USABILITY FINDINGS

# of People Affected	Observation	Severity	Recommendation
3	Participants were unclear about the goal of the site, particularly 1). what defined a lifestyle activity, 2). one-time gigs or ongoing engagement, and 3). tasks or lessons.	High (1)	Flesh out homepage with two additional sections: 1) showcase all the lifestyle categories available; 2) provide an overview of the site's key features.
3	Users didn't understand they could negotiate the initial listed price, and negatively reacted to the language.	High (1)	Remove the language, and pre-fill the listing price with the seller's hourly rate. Further research is necessary.
3	Participants expressed confusion about setting the location themselves and expected the meeting place to be set by the seller.	High (1)	Pre-fill with the seller's preference. Further research is necessary.
4	Users expressed confusion about the payment module's language.	High (1)	Consider changing the pop-up to a separate checkout page with more explicit detail.
2	Participants expressed uncertainty regarding the success of the payment after clicking the “Checkout” button.	High (1)	Alert the users of the checkout status (success or failure) immediately after the interaction is complete with a pop-up confirmation.
1	Users are unsure if he could can cancel an appointment.	High (1)	Include a “Cancel” button in context of the “pending proposals” and “appointments” modules. This button currently does not exist, and is necessary.
4	Participants didn't realize they could also be sellers if they wanted to promote their lifestyle expertise.	High (1)	Add concise language on the homepage alerting users they can sell their lifestyle skills, too. Consider creating a secondary signup flow for sellers as well.
2	Users didn't notice the gray search bar against the black header bar.	Medium (2)	Consider changing the search bar to white for a stark contrast against the black header.

# of People Affected	Observation	Severity	Recommendation
2	Participants were unsure about the structure of the meetings, and wanted more information.	Medium (2)	Consider designing the profile so the seller can highlight a lesson plan or agenda.
2	Users didn't understand what they should send in the message box.	Medium (2)	Change the language, giving the buyer an example of what the context of a message should be.
1	Users didn't expect to see local results featured within his/her dashboard.	Low (3)	Further research is needed to understand the crucial aspects users need, want and expect in a dashboard.
2	Participants expected more information about how to navigate the site.	Low (3)	Consider designing a first-time tutorial.
2	Users expressed interest in wanting to see a portfolio of the seller.	Low (3)	Consider exploring options for sellers to showcase their work on site.
3	Users expected a calendar view or a list of availabilities set by the seller.	Low (3)	Consider designing a calendar view for sellers to select predefined availabilities, allowing buyers to select from them. Test with a lo-fi prototype for both the seller and buyer.

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