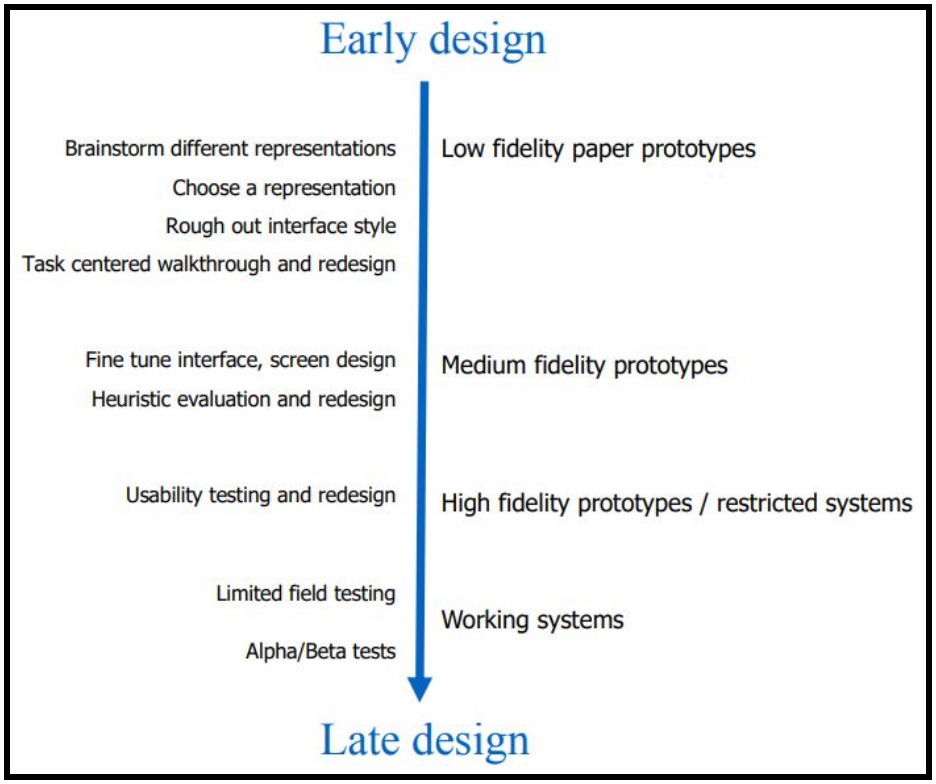
CSCC10 Week 5 Notes

Lecture Notes:

- Prototype iteration improves results.
- You should prototype difficult, controversial, and critical areas.
- Aspects to test:
    - Concepts & terminology
    - Navigation, work & task flow
    - Content
    - Documentation, help
    - Requirements, functionality
    - Screen layout
    - Brand
    - Colours, fonts, graphic elements
    - Widgets & controls
    - Response time, performance metrics
    - Real-world use: Needs context of use + Technical feasibility
- Prototype during design:



- Task Analysis:
    - Investigate current tasks relevant to design.
    - What is being achieved?
    - How is it being achieved?
    - Hierarchical Task Analysis (HTA)

Textbook Notes:

- **Paper Prototyping as a core tool in the design of mobile phone user experiences:**
- **Part 1: Problem Space:**
- This section outlines the design issues that mobile UE designers typically face and how paper prototyping helps solve them.

- The design challenges for mobile UI projects typically are the issues of time, device constraints and the diverse teams involved in projects.
- As designers, how can we design the best user experience in the fastest time possible?
- How can we achieve this while working within constraints of a small device and achieve the objectives of all stakeholders involved?
- Designers need rapid methods with which to collaborate, prototype, evaluate and iterate their designs.
- **Design Issue 1: Device Constraints:**
- The constraints of mobile devices make them a challenging platform to design for. The constraints include limited input controls (keys, keypad) and small screen size. Also, devices by different manufacturers or with different navigation approaches have varying configurations. Often a service needs to be designed for multiple devices and that adds complexity for designers.
- When designing for the PC-based product, designers have the flexibility of a large screen area, and 'point and click' input using the mouse. Whereas for mobile, there is no 'point and click', text entry is slow using the mobile phone keypad, and the screen display size means that the presentation of information is more challenging.
- These challenges require mobile UI designers to work through the entire user experience and flow. They need to consider the use of softkeys, menus, sub-menus, use of hardkeys, time taken for processes to complete, menu information architecture, payment issues and other issues.
- **How does paper prototyping help:**
- Paper prototyping as a process is rapid and iterative so that issues can be explored from many angles quicker than other methods. Mapping the entire UI enables the designer to consider the overall flow as well as the details of the menus, sub-menus, keys usage and other issues. In the case where the product/service is being designed for multiple devices (with different navigation), the method can include creation of a set of paper prototypes for each device.
- **Design Issue 2: Time to Market:**
- The mobile industry moves fast. There is a culture within the industry that 'we need this yesterday' or 'we need to get this into the market before anyone else'. Design methods in the industry often need to be rapid if they are to respond to this. The challenge is in achieving design solutions rapidly, while retaining innovation and clarity.
- **How does paper prototyping help:**
- To a business, the time of their designers and developers is a high cost. Paper prototyping saves time at the start of a project. It enables iterations and discussion to be completed before designers or developers start their time consuming work of creating visual designs or writing code.
- This saves huge amounts of time and money as the 'right' product is developed from the start. The designer and developer can then work to create their visual designs and code based on the paper prototype design.
- As part of the paper prototyping work, UE designers work centrally with the team, identifying potential user experience/usability issues from the start of a project. This also saves time and cost longer term as any UE issues are captured before the time-consuming design/development work starts.
- **Design Issue 3: Multiple Stakeholders:**
- Mobile UI design projects often involve large, multi-disciplinary teams. This is a major challenge for UE designers. How can designers get all stakeholders to be 'on the same

page', with their ideas combined and synchronised. The stakeholders often will include software engineers, project managers, marketing managers, commercial managers, handset manufacturers, network operator specialists, visual designers and content managers.

- Each stakeholder has a varied skill set, background, 'discipline language', requirements and motivations.
- **How does paper prototyping help:**
- Paper prototyping provides a powerful way to collaborate. It enables all stakeholders to work on a single view of the product user experience, as a group.
- The method enables everyone in the team to discuss their design ideas—comparing designs, throwing out designs, iterating designs, until the optimum design is reached.
- A key strength comes from the simplicity of the materials used in design sessions. The use of just pens and paper to draw the user experience enables all stakeholders to be involved, regardless of their skillset or discipline. Anyone can sketch their ideas to explain them, so there is no division of the group based on skill sets.
- Another issue is that stakeholders tend to become more attached to ideas and products the more developed they become. For example, a developer who has written code for a feature has invested their time and effort into that feature. Even if the feature creates a negative experience for a user, the developer may want to keep it in the product. A visual designer who has spent time creating detailed visual concepts using Photoshop may be attached to those designs to some extent. The power of paper prototyping is that everyone feels more comfortable throwing an idea out early. This 'fluid' design approach leads to more refined design solutions at the end of the design cycle. It also leads to designs that are more centred on the user when a UE designer works with the team as they can always address the user perspective in sessions.
- **Design Issue 4: Proving Concepts Early:**
- Designers often need to create 'proof of concept' prototypes. This enables them to get 'buy in' from stakeholders and others who will invest, or promote the concepts. In the mobile industry, many of the concepts are new and may not have reached the public domain yet. So designers need to provide concrete examples of how the design will work and how it will look. The most effective way is through prototyping—both paper prototypes, and higher-fidelity prototypes, based on real devices. Once a prototype exists, all stakeholders have the method with which to understand the concept more clearly. That by default enables more productive discussions and further ideas. Viewing a prototype also helps to define the direction clearly for all involved.
- **How does paper prototyping help:**
- Using paper prototyping is the fastest possible way to design, iterate and discuss concepts as a group. Once a paper prototype has been created, there is a solid prototype—even though it is in sketch form—that can be discussed and which brings the concept to life for the viewer regardless of their discipline.
- **Design Issue 5: Technology-led, not User-Centred:**
- Until recently, the mobile industry has often created products with a 'technology first' approach. This has meant products being created by engineers and technologists rather than user experience designers or usability experts. Often they are highly technical people, who focus on the technical perspective and have less awareness of actual end user needs and behaviours.
- **How does paper prototyping help:**

- Paper prototyping enables a ‘user first’ approach. It enables the UE designer to model and craft the user experience—the complete interface as it will unfold to the user. Paper prototyping facilitates and promotes the design of the user experience and interface before any software engineering commences. As a result, the design is centred on the user and their product experience—rather than being led by the technology.
- **<u>Part 2: Project Walkthrough Design of a ‘Manchester United Fan’ mobile phone UI:</u>**
- This example project provides a walkthrough of various issues considered when designing a mobile phone UI. The example covers a relatively small mobile phone application for the purpose of illustrating the method in use. By contrast, designing complete mobile phone applications such as ‘contacts’ or ‘messaging’ would be a much more involved process.
- **The Design Scenario:**
- Imagine we are asked to design a ‘rich content experience’ for a mobile telecoms operator company. They want to target their customers’ personal interests, and provide them with downloadable ‘themes’. The operator wants to encourage customers to utilise online services—like downloading wallpaper images, and checking online information. The idea is that ‘themes’ will change the way the customers’ phone looks onscreen as well as provide new content features. The example for this scenario is a ‘Manchester United’ football team theme, targeting fans of the team.

1. **User Focus:**
    - Identify user goals A first step in the design process would be identifying the key user goals that the service is to support. The user goals provide a design reference point throughout the paper prototyping work. Some example user goals would include:
    - Checking the latest wallpapers that could be downloaded
    - Downloading the chosen wallpaper
    - Changing the wallpaper setting of the phone to the new downloaded wallpaper
    - Checking the team news headlines
    - Checking an individual news story
    - Checking the team’s upcoming fixtures
    - Checking the team’s position and scores in the league table
2. **Content audit/structure: Identify features and content:**
    - As well as considering user goals, we need to detail the content and features of the product. This includes identifying the content available, the desired features and the overall user experience the operator wants to achieve. For this project, some of the areas to consider would be:
    - **Operator company (client focussed) aims to:**
        - Enable personalisation
        - Encourage customer usage of online content
    - **Content and features:**
        - Manchester United wallpaper images
        - Manchester United fixtures information
        - Manchester United news stories
        - Manchester United league tables updates
    - **User Experience considerations (users focussed):**
        - The download and purchase process
        - The installation process for the theme
        - The switching between multiple themes

    - The navigation of the theme and its contents
- Our aim would be for the design solution to meet the needs of both the client and the target user. This early stage in the design process would involve a period of brainstorming, where we consider all possible content and features individually, as well as how they would work together as a complete product.

3. **First Paper Prototype: First Design Iteration:**
    - Once the user goals, content and features are mapped out, the first paper prototype can be created. The images in the following sections illustrate the paper prototypes and how they are used for different design decisions.
    - **3.1. Macro vs. Micro views:**
    - The macro view is where we take the entire application and view it in one.
    - The micro view is where we 'zoom' into the details of particular application sections.
    - As we design, we switch between these two views constantly. A key benefit of the zooming is that it enables us to see that a service or application uses words, options, layouts and other elements consistently. Consistency is as important with mobile UI design as with any other user interface, so comparing the two views helps address this factor in a design.
    - **3.2. Screen-by-screen flows:**
    - We work to map out every individual screen, state and view the user will see on the final device UI.
    - **3.3. Sections and content:**
    - The sections of the application are drawn out in detail.
    - This enables us to start exploring the content.
    - **3.4. Design alternatives:**
    - A key strength of paper prototyping is the ability to compare design alternatives.
    - Paper prototyping enabled us to compare the multiple designs, and view them side-by-side, within the context of the entire application. We could then remove the less effective designs once a decision was made on which to pursue.
    - **3.5. Mobile phone network issues:**
    - Mobile phone network issues (download processes, lost connections, etc.) are often more difficult to consider at the stage of paper prototyping. Network behaviour can be less predictable than we as designers would like. We aim to achieve the best user experiences while being told by network specialists that they cannot guarantee coverage, the speed of downloading and so on. It is important for us to consider the effect network issues will have on the overall user experience for customers at this early stage of design.
    - **3.6. User wait times/User feedback:**
    - If we need the user to do something, or wait for a process to complete, we need to provide clear on screen feedback and dialogs so that we manage the users expectations. We need to map out any significant user wait times, consider how to provide feedback, and the wording to use so that the user experience is as smooth and consistent as possible.
    - **3.7. Navigation consistency:**
    - Mapping out the entire application enables us to design navigation models that are consistent, across the application. This means the UI will be consistent in appearance, wording and behaviour regardless of section, content area, etc. Generally, the navigation issues for a mobile application will include:

        - **Labels and words:** Used in menus and on screen throughout.
        - **Hard keys:** On the keypad that are used to navigate.
        - **Soft keys:** Map to the onscreen word labels via the two hard keys left and right.
        - **Options Menus:** Most mobile phone UI's offer the user a set of options, accessed at each screen and relevant to the context of that screen. This is an important element that we consider in paper prototyping. We use the approach to make sure that the wording, positions in the item list and other factors are consistent across all Options menus within the application UI.
        - **Use of a 'Back' key:** This can either be onscreen as a softkey or a hard key on the keypad. It is one of the most important navigation issues for users 'how do I get back a screen?
    - **3.8. Visual design treatments:**
    - Paper prototyping is a visual process. The screens and their elements are drawn, rather than described using text. So very early on, designers can consider the visual elements of the user interface.
- **Usability testing on 10 cents a day keeping testing simple—so you do enough of it:**
- Sadly, most usability testing gets done too little, too late, and for all the wrong reasons.
- Sometimes, people want to use focus groups instead of doing usability testing.
- In a focus group, a small group of people (usually 5 to 8) sit around a table and react to ideas and designs that are shown to them. It's a group process, and much of its value comes from participants reacting to each other's opinions. Focus groups are good for quickly getting a sampling of user's opinions and feelings about things.
- In a usability test, one user at a time is shown something (whether it's a Web site, a prototype of a site, or some sketches of individual pages) and asked to either (a) figure out what it is, or (b) try to use it to do a typical task.
- Focus groups can be great for determining what your audience wants, needs, and likes—in the abstract. They're good for testing whether the idea behind the site makes sense and your value proposition is attractive. And they can be a good way to test the names you're using for features of your site, and to find out how people feel about your competitors.
- But they're not good for learning about whether your site works and how to improve it.
- The kinds of things you can learn from focus groups are the things you need to learn early on, before you begin designing the site. Focus groups are for EARLY in the process. You can even run them late in the process if you want to do a reality check and fine-tune your message, but don't mistake them for usability testing. They won't tell you whether people can actually use your site.
- **Several true things about testing:**
    1. If you want a great site, you've got to test. After you've worked on a site for even a few weeks, you can't see it freshly anymore. You know too much. The only way to find out if it really works is to test it. Testing reminds you that not everyone thinks the way you do, knows what you know, uses the Web the way you do.
    2. Testing one user is 100 percent better than testing none. Testing always works. Even the worst test with the wrong user will show you things you can do that will improve your site.

3. Testing one user early in the project is better than testing 50 near the end. Most people assume that testing needs to be a big deal. But if you make it into a big deal, you won't do it early enough or often enough to get the most out of it. A simple test early—while you still have time to use what you learn from it—is almost always more valuable than a sophisticated test later.
4. The importance of recruiting representative users is overrated. It's good to do your testing with people who are like the people who will use your site, but it's much more important to test early and often.
5. The point of testing is not to prove or disprove something. It's to inform your judgment. People like to think, for instance, that they can use testing to prove whether navigation system "a" is better than navigation system "b", but you can't. No one has the resources to set up the kind of controlled experiment you'd need. What testing can do is provide you with invaluable input which, taken together with your experience, professional judgment, and common sense, will make it easier for you to choose wisely—and with greater confidence—between "a" and "b."
6. Testing is an iterative process. Testing isn't something you do once. You make something, test it, fix it, and test it again.
7. Nothing beats a live audience reaction. One reason why the Marx Brothers' movies are so wonderful is that before they started filming they would go on tour on the vaudeville circuit and perform scenes from the movie, doing five shows a day, improvising constantly and noting which lines got the best laughs. Even after they'd settled on a line, Groucho would insist on trying slight variations to see if it could be improved.

- **Lost-our-lease testing:**

	Traditional Testing	**Lost-our-lease Testing**
NUMBER OF USERS PER TEST	Usually eight or more to justify the set-up costs	Three or four
RECRUITING EFFORT	Select carefully to match target audience	Grab some people. Almost anybody who uses the Web will do
WHERE TO TEST	A usability lab, with an observation room and a one-way mirror	Any office or conference room
WHO DOES THE TESTING	An experienced usability professional	Any reasonably patient human being
ADVANCE PLANNING	Tests have to be scheduled weeks in advance to reserve a usability lab and allow time for recruiting	Tests can be done almost any time, with little advance scheduling
PREPARATION	Draft, discuss, and revise a	Decide what you're going

	test protocol	to show
WHAT/WHEN DO YOU TEST?	Unless you have a huge budget, put all your eggs in one basket and test once when the site is nearly complete	Run small tests continually throughout the development process
COST	$5,000 to $15,000 (or more)	About $300 (a $50 to $100 stipend for each user and $20 for three hours of videotape)
WHAT HAPPENS AFTERWARDS	A 20-page written report appears a week later, then the development team meets to decide what changes to make	Each observer writes one page of notes the day of the test. The development team can debrief the same day

- **THE TOP FIVE PLAUSIBLE EXCUSES FOR NOT TESTING WEB SITES:**

We don't have the time.	It's true that most Web development schedules seem to be based on the punchline from a Dilbert cartoon. If testing is going to add to everybody's to-do list, if you have to adjust development schedules around tests and involve key people in preparing for them, then it won't get done. That's why you have to make testing as small a deal as possible. Done right, it will save time, because you won't have to (a) argue endlessly, and (b) redo things at the end.
We don't have the money.	Forget $5,000 to 15,000. If you can convince someone to bring in a camcorder from home, you'll only need to spend about $300 for each round of tests.
We don't have the expertise.	The least-known fact about usability testing is that it's incredibly easy to do. Yes, some people will be better at it than others, but I've never seen a usability test fail to produce useful results, no matter how poorly it was conducted.
We don't have a usability lab.	You don't need one. All you really need is a room with a desk, a computer, and two chairs where you won't be interrupted.
We wouldn't know how to interpret the results.	It's true,the trickiest part of usability testing is making sure you draw the right conclusions from what you see.

- **How many users should you test:**
- The ideal number of users for each round of testing is three, or at most four.

- The first three users are very likely to encounter all of the most significant problems, and it's much more important to do more rounds of testing than to wring everything you can out of each round. Testing only three users helps ensure that you will do another round soon.
- Also, since you will have fixed the problems you uncovered in the first round, in the next round it's likely that all three users will uncover a new set of problems, since they won't be getting stuck on the first set of problems.
- Testing only three or four users also makes it possible to test and debrief in the same day, so you can take advantage of what you've learned right away. Also, when you test more than four at a time, you usually end up with more notes than anyone has time to process—many of them about things that are really "nits," which can actually make it harder to see the forest for the trees. It's better to stay focused on the biggest problems, fix them, and then test again as soon as possible.
- **Who should be testing:**
- When people decide to test, they often spend a lot of time trying to recruit users who they think will precisely reflect their target audience—for instance, male accountants between the ages of 25 and 30 with one to three years of computer experience who have recently purchased expensive shoes.
- The best-kept secret of usability testing is the extent to which it doesn't much matter who you test.
- For most sites, all you really need are people who have used the Web enough to know the basics.
- Try to find users who reflect your audience, but don't get hung up about it. Instead, try to make allowances for the differences between the people you test and your audience. I favor this approach for three reasons:
    1. We're all beginners under the skin. Scratch an expert and you'll often find someone who's muddling through—just at a higher level.
    2. It's usually not a good idea to design a site so that only your target audience can use it. If you design a site for accountants using terminology that you think all accountants will understand, what you'll probably discover is that a small but not insignificant number of accountants won't know what you're talking about. And in most cases, you need to be addressing novices as well as experts anyway, and if your grandmother can use it, an expert can.
    3. Experts are rarely insulted by something that is clear enough for beginners. Everybody appreciates clarity.
- The exceptions:
    1. If your site is going to be used almost exclusively by one type of user and it's no harder to recruit from that group, then do it. For instance, if your audience will be almost entirely women, then by all means test just women.
    2. If your audience is split between clearly defined groups with very divergent interests and needs, then you need to test users from each group at least once. For instance, if you're building a university site, for at least one round of testing you want to recruit two students, two professors, two high school seniors, and two administrators. But for the other rounds, you can choose any mix.
    3. If using your site requires specific domain knowledge (e.g., a currency exchange site for money management professionals), then you need to recruit people with that domain knowledge for at least one round of tests. But don't do it for every round if it will reduce the number of tests you do.

- When you're recruiting:
    - Offer a reasonable incentive. Typical stipends for a one-hour test session range from $50 for "average" Web users to several hundred dollars for professionals from a specific domain, like cardiologists for instance. I like to offer people a little more than the going rate, since (a) it makes it clear that I value their opinion, and (b) people tend to show up on time, eager to participate. Remember, even if the session is only 30 minutes, people usually have to block out another hour for travel time. Also, I'd rather have people who are curious about the process than people who are desperate for the money.
    - Keep the invitation simple. "We need to have a few people look at our Web site and give us some feedback. It's very easy, and would take about forty-five minutes to an hour. And you'll be paid $___ for your time."
    - Avoid discussing the site (or the organization behind the site) beforehand. You want their first look to tell you whether they can figure out what it is from a standing start.
    - Don't be embarrassed to ask friends and neighbors. You don't have to feel like you're imposing if you ask friends or neighbors to participate. Most people enjoy the experience. It's fun to have someone take your opinion seriously and get paid for it.
- **Where do you test:**
- All you really need is an office or conference room with two chairs, a PC or Mac, a camcorder, and a tripod.
- I recommend running a long cable from the camcorder to a TV in another oªce— or even a cubicle—nearby and encouraging everyone on the development team to come and watch.
- The camcorder needs to record what the user sees (the computer screen or the designs on paper, depending on what you're testing) and what the user and the facilitator say. In most cases, you'll never go back and look at the videotapes, but they're good to have anyway, particularly to show to team members who want to observe but can't.
- **Who should do the testing:**
- Almost anyone can facilitate a usability test; all it really takes is the courage to try it. With a little practice, most people can get quite good at it. Try to choose someone who tends to be patient, calm, empathetic, a good listener, and inherently fair. Don't choose someone whom you would describe as "definitely not a people person" or "the oªce crank."
- **Who should observe:**
- Anybody who wants to. It's a good idea to encourage everyone—team members, people from marketing and business development, and any other stakeholders—to attend. If you can, try to get senior management to at least drop by; they'll often become fascinated and stay longer than they planned.

- **What do you test, and when do you test it:**

	PLANNING	ROUGH SKETCHES	PAGE DESIGNS	PROTOTYPE	FIRST USABLE VERSION	"CUBICLE TESTS"
WHAT TO TEST	Competitors' sites	Sketch of Home page Names of top level categories and site features	Home page Second-level page template Content page template	As much as you have working	As much as you have working	Each unique page
FORMAT	Live site	Paper	Paper	HTML prototype	Live site	HTML page
HOW TO TEST	"Get it" Key tasks	"Get it" Names of things	"Get it" Basic navigation	"Get it" Key tasks	"Get it" Key tasks	Key tasks
WHAT YOU'RE LOOKING FOR	What do they like/love? How does it fit into their lives? What works well? How hard is it to do key tasks?	Do they get the point of the site? Does it seem like what they need?	Do they get the point of the site? Do they get the navigation? Can they guess where to find things?	Do they still get it? Can they accomplish the key tasks?	Do they still get it? Can they accomplish the key tasks?	Can they accomplish the key tasks?
SESSION LENGTH	1 hr.	15-20 min.	15-20 min.	45 min.-1hr.	1 hr.	5 min. per page
# OF TESTS	1	1-3	1-3	1-3	1-3	1 per page

- **Get it testing** is just what it sounds like: show them the site, and see if they get it—do they understand the purpose of the site, the value proposition, how it's organized, how it works, and so on.
- **Key task** testing means asking the user to do something, then watching how well they do.