Midterm CS 5714 Usability Engineering
Spring 2014

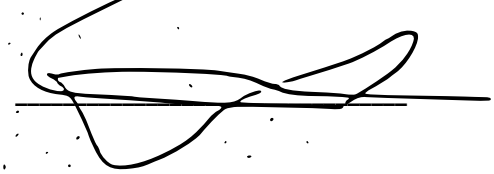
Instructions

1. Sign the honor pledge below.
2. Write your name, PID (email) on page 1. **DO NOT write your name anywhere else on the test.**
3. Read all instructions carefully before answering the questions. Answer all multiple choice and true/false questions in the test.
4. Produce a PDF and email it to the instructor to perez@cs.vt.edu.

Good luck!

Honor Pledge:

I pledge that I have neither given, nor received undue help while completing this exam.

Name: 

PID: _____**SPECIAL** (@vt.edu)

Part 1. Multiple Choice (20 points)

1. _____ includes effectiveness, efficiency, ease-of-use, and user satisfaction
   a) usefulness
   b) usability
   c) functionality
   d) emotional impact
2. What is a "dancing bear" software?
   a) applications with such good design that we love to use them
   b) applications with such bad design that we can't stand them
   c) app that implements such a great idea that we can ignore bad user experience
   d) applications that show a dancing bear in the about box to improve user satisfaction
3. Poor usability can be overcome with training.
   a) True b) False
4. Work activity notes should be complete and self-standing.
   a) True b) False
5. Labels for clusters should be coarse in description, like "general" to capture the most data possible.
   a) True b) False
6. Good designers can create such great products that they design user experiences.
   a) True b) False
7. The details of the process lifecycle used in a project depends on interaction and work domain complexity.
   a) True b) False
8. WAADs only focus on activity notes derived from interviews.
   a) True b) False
9. A persona is a story and description of a realistic person who has a name
   a) True b) False
10. A scenario is a story and description of a realistic person who has a name
    a) True b) False
11. Which term applies to the set of activities that people undertake to accomplish goals?
    a) work
    b) work domain
    c) work activity
    d) work practice
12. Which inquiry model is driven entirely by work activity data as it presents itself?
    a) data-driven inquiry
    b) model-driven inquiry
13. Which term applies to the set of activities that people undertake to accomplish goals?
    a) work
    b) work domain
    c) work activity
    d) work practice

14. A diagram used to give the big picture or overview of work
    a) affinity diagram
    b) flow model
    c) work activity note
    d) work activity affinity diagram

15. A hierarchical technique used to organize and group issues and insights across large quantities of qualitative data.
    a) affinity diagram
    b) flow model
    c) work activity note
    d) work activity affinity diagram

16. What other discipline(s) does the human information processing paradigm have roots in?
    a) psychology
    b) computer science
    c) human factors engineering
    d) Both human factors and psychology

17. Knowledge in the head is collected through _____.
    a) sketching
    b) interviews
    c) observations
    d) none of the above

18. Design ontology is a description of all the objects and their relationships, users, user actions, tasks and everything surrounding the existence of a given aspect of a design.
    a) True b) False

19. Ubiquitous interaction is an interaction occurring just on computers and laptops.
    a) True b) False

20. Tangible interaction is closely related to embodied interaction.
    a) True b) False

Part 2. Use the transcript of an interview with a client below to answer the following questions.

Background: Dr. MPQ is a faculty member at a large public institution. He has many different work responsibilities. As a result, he is always on the go around campus and rarely in one fixed location. One of his many responsibilities includes signing paperwork for graduate students. He gets lots of emails from them, requesting to meet with him for a quick signature. Due to his erratic schedule, it is difficult to establish time and place where it might be appropriate to meet with them. So he is interested in creating a mobile organizer which is smart enough to help him schedule meetups. The interview below is with Dr. MPQ about the vision and creation of this system. Miss UX is the member of the UX team contacted to do contextual inquiry for such a system.

MPQ: Hi and welcome Miss UX.
UX: Thanks for your time, Dr. MPQ. Can you briefly describe the needs you have for this system?

MPQ: The idea was borne out of a personal pain in my day to day work. I receive many emails from students, and it is my responsibility to take care of their questions. Often they request a time to meet with me to talk about administrative questions they have about their studies, plans of studies, applications for graduation, etc. These questions are often simple questions that can be handled with a 10-15 minute meeting. Sometimes they just need to catch me for a quick signature.

I have a very busy schedule which puts me in different parts of campus everyday. It is really hard to find a time to meet students if the request is "Can I meet with you this week?" Tomorrow, for example, my day is already planned with trips to campus and to KWII and meetings at both locations. But I often have a few free minutes between the other responsibilities but by the time I reply to the students and coordinate where to meet, we might not have time to plan to meet me at one of the two locations. And my schedule changes, meetings run long, etc.

So, it occurred to me that if I we both have cellphones, why not have an app that negotiates the meeting time based on dynamic detection of our proximities. I can plan a meeting in the "next 2 days" and the app will share my location and times with a student's app and the apps can determine when and where to meet.

UX: Tell me more about how do you envision this working?
MPQ: Well, the two phones can "negotiate" to see if they are close to each other. Nowadays, we bring our mobile phones everyday everywhere. I hope this system can enable me to share either my next a few hours or my current location with students. So during the daytime, for example, if a student would like to talk to me, I can share my calendar for the next 4 hour with him, or allow him to track my location for that period. The student would know where to go to reach me. We would avoid the emails back and forth trying to schedule a time and location to meet. So they don't need to come to KnowledgeWorks to see me or wait for another week until my next office hours.

UX: What if the student would like to set up a real meeting with you rather than a quick talk?
MPQ: Oh, that should be easier. This system can pull my calendar and the student's calendar, by matching our available time slots, it can suggest a tentative time and location for us to meet and send us notifications to confirm. So I don't need to open the calendar to choose a time to set up a meeting, email the student, etc. The system does it automatically. The only thing I need to do is to confirm the time and the location.

UX: So does that mean this mobile organizer may have access to your calendar?
MPQ: Absolutely, but that's not a problem because my calendar is on the web visible anyway. That allows the system to know my free time and my busy time so it can help me to set up meetings and save more time. They only reason why they can't do this with the calendar by themselves is that I don't put meeting locations on the calendar.

UX: Can you give me an example of how this system works?
MPQ: For example, a student is requesting to see me, maybe the student needs a signature on some paperwork that needs to be done before the end of the week. I schedule "meetup" with him for the next 2 days. Maybe it turns out that we will be in the same building later today. The system might indicate, for example that both of us will be in MCB but in different floors. I am walking downstairs and he has just finished the class on the 2nd floor, so his phone should beep or vibrate to alert him and display a message indicating where I am in the building. So he can just stay on the 2nd floor to run into me and we can meet up.

UX: What would happen if the meeting can't happen in the next 2 days, for example, if you are on travel?
MPQ: Well, first, if I am on travel, when I get the request "Can I meet you this week?" I would reply "no, I am on travel." Then the student would have to request another time frame. But if I am not on travel, I can schedule a meeting in the next 2 days… if at the end of the two days we never ran into each other, the system can then text both of us and notify us that a meeting request failed and the two of us would have to decide what to do next.

UX: Do you have any privacy concerns about this system? Wouldn't your students use it to track you and meet you without your approval?
MPQ: No because tracking me requires my permission of course. Have you seen a service called Glympse? It is similar to that, but on a more local scale. You can't stalk me with Glympse but I can share my location with you through that service. I would be the same thing. They can only reach me when I share my location with them. But as to the location tracking, I would have control to decide whether to have that meeting or not.

UX: Thank a lot for your time. We will work on a series of design informing documents and share them with you.
MPQ: Fantastic, I look forward to seeing them.

Questions:

1. (10 pts) Write a system concept statement for target systems above. This is a 100-to-150-word summary of the project, per the description of concept statement in the textbook and in our lectures. This is a high-level mission statement of a project—a synopsis or "boilerplate" description. Include the name of the system, a description of the kinds of users expected, a brief statement of what users can do with it, and why it's useful (what problems it solves).
2. (20pts) Make an initial flow model, a "big picture" diagram of the work domain and the entire work practice. Show interconnections among components of the work domain. Show work flow, information flow, and all communications among the components. Include non-human entities, such as a central database and non-computer communication flow such as via email, telephone.

3. (20pts) Identify all the work roles in the system from the interview transcript above. A work role is defined by a corresponding job title or a particular type of work assignment or a set of work responsibilities. Work roles don't always involve using the system being studied. For each work role, give it a name, and a brief description.
4. (20pts) Make a hierarchical task inventory diagram showing the task structure for the product described in the interview. An HTI Diagram captures and catalogs the hierarchical relationships among the tasks and subtasks that must be supported in the system. Remember that HTI does NOT capture temporal relationships.

Part 3. (10 points) Discuss the following paper. Do not write more than one page. Make sure what you write are your own words, do not copy words from the paper. Also there are write-ups on the web summarizing this paper, they are easy to google. Do not use them. I am interested in your personal summary not a copy of words. In particular explain what is *the third wave* or *the third paradigm* presented on the paper and why it is important for the content of this course.

- D. Tatar, S. Harrison & P. Sengers (2008) *The Three Paradigms of HCI*. Available at http://people.cs.vt.edu/~srh/Downloads/TheThreeParadigmsofHCI.pdf