Appendix A – Semi-structured Interview questions

Overview

There are several potential benefits of using a head-worn device or wearable display (e.g., Google glass), including facilitating hands-free work and the capability to provide real time/up-to-date information. Depending on the level of software sophistication, there is also the potential to provide information visually and aurally: 1) showing information such as item name and/or image, quantity, and location, 2) help in locating items, 3) help in detecting errors, 4) providing new or continuation training for employees, etc. The use of a wearable display, therefore, may have important current and future implications in several industrial sectors. In fact, wearable displays are receiving increasing attention, with some applications being reported and others in development. We are beginning a research effort to guide and develop the standards and recommendations that facilitate the safe adoption and use of wearable display in practice. As the first step in this, we are talking with several industry representatives such as yourself, to gain industry perspective on wearable display with focus on safety and health.

Demographics and industry characteristics

1. Can you tell us what industry you work in, how long you have worked in this industry, and briefly describe your current position?
2. Can you tell your company size (number of employees)? Note: don't need to be exact.
3. What kinds of work does your company/division engage in?

4. Can you tell a little about your workforce characteristics? For example, are there more young workers *vs.* experienced workers? Is there a seasonal trend?
    a. Are there any efforts in place or planned to increase or expand your workforce (e.g., recruiting older workers, workers with disabilities)?

Technology Adoption

5. Can you describe the general approach(es) used by your company (or you) in adopting new technology? For example, who is typically leading such efforts, deciding what technology to adopt, and how to adopt it?
    a. What factors do you (or your company) typically consider when deciding upon technology adoption? For example, internal needs, management support, business competition, selection of vendors for the technology, maturity of technology, risk/reward ratio, etc.
    b. Depending on technology, there may or may not be immediate benefits. If there are only long-term benefits (not short-term), what can be the most important factor(s) among the factors you just mentioned?

6. Considering the potential benefits of wearable displays mentioned earlier, do you think that wearable display technology is or could be useful in your industry? Note: remind about the strengths if needed.
    a. (probe) in what way?

7. Are the technology adoption factors you mentioned still valid specifically for wearable display technology?
    a. (probe) Does the relative importance of each factor remain the same?
    b. If not, can you tell what might be important factors for the adoption of wearable displays in your industry?
    c. Do you foresee any potential for wearable displays to help with workforce retention, expansion, or otherwise?
        i. (probe) can this be an important factor to prompt the adoption of wearable displays?

8. What do you see as potential barriers for wide-spread adoption of wearable displays in your industry (or other industries)?

Supporting Worker Tasks/Jobs

9. Considering the potential benefits of wearable displays mentioned earlier, can you think of particular tasks and operations in your industry that might benefit from use of this technology? Note: remind about the benefits if needed.
    a. If you had to choose ONE worker role to pilot test headworn display technology, which would it be? Why? (probe for more details about the generic interfaces and interactions that might be needed).
    b. What factors are you considering when choosing this role? Risk, potential impact to operations (good & bad), operational process, employees involved in the pilot, etc

10. How important is information in operations that involve these workers? That is, do workers frequently communicate with other workers and/or managers, or require real-time and/or up-to-date information regarding tasks (e.g., task specific manual, any information related to work task, etc.)?
11. How frequent is access to this information/communication?
12. How diverse is the information/communication? Is it the same information updated continuously, or is it a variety of information that needs to be accessed?
    a. (If diverse information)
        i. Is there a consistent process, pattern or order to the access, or is it essentially random/responding to changing environmental/process conditions?

Safety and health

13. Can you tell what types of safety and health training and education are available for workers?
    a. (probe) How often is safety and health training and/or education given to workers?
    b. Is there something in the current training and education programs or methods that you think needs to be improved?
        i. (probe) do you think wearable displays could improve your current training and education?
    c. (If there is no training and education program)
        i. Can you tell what alternatives there are for workers in terms of safety and health training and/or education?

14. Can you tell us about common safety and health concerns in your industry?

15. Do you think wearable displays could help address any of the safety and health concerns you just mentioned?

16. Adopting a new technology may create unexpected safety and health concerns. Is there typically a procedure to address potential safety and health in your company or industry in general?
    a. If so, please elaborate and give a specific example if possible.
    b. If not, can you explain how potential safety and health problems are typically addressed?

17. For the potential HWD-supported tasks you mentioned (Note: remind about the task if needed), can you think any potential safety and health concerns?