

***Testing Methodology: Overview***  
***Alter Audio; MDCN Project, July 2006***

User testing for Alter Audio is based on a critical ethnographic model, whereby the researcher is a participant-observer. Participants are explained the reason for the research, are part of the process of describing /assessing their experience and finally, will be invited to comment back on researcher findings, in order to ensure that the researcher has gathered “data” with validity and relevance. Overarching themes of the research are as follows: the process should be as transparent as possible to ensure participant trust, and understanding of their rights in the testing process. The research process seeks to absorb as much information from users in their own words and context as possible; it avoids subjecting participants to any paradigm or context that melds or constrains user response or experience. This research process assumes that users need to understand the parameters of the experience prior to use, in order to mirror the actual experience of users who will use the finished product. That is, researchers will explain the test in terms of the final end product – the game—and only avoid providing data that will color or impact the items and experiences to be tested that day. In this way, the data becomes contextualized in the actual game, users feel safe, and yet the test can be performed in order to obtain desired data.

***Testing Process Overview***

The testing process consists of various stages: participant recruitment, introduction to the test, questionnaires, field-testing, debrief (focus group or interviews), and data transcription and interpretation, and finally vetting of the data among the key researchers.

***Participant Recruitment***

Participants should be recruited with thought given to what populations should be tested, and whether testing groups should be diverse or share some common features (i.e. age, familiarity with mobile technology, moderate to heavy media user, park walkers, etc. Because *Alter Audio* seeks to provide the end product to any one using Grange Park in Toronto (adjacent to OCAD) park user, we will recruit from the diverse population who uses the park. We will avoid testing only undergraduate students. It makes sense, however, to test users in groups that they are likely to walk in while they use the end experience; as such, we will test groups of undergraduates in isolation from groups of Chinatown residents.

***Information to provide users in recruitment stage***

Users should be made aware of the elements of the “game” they will be asked to engage in; researchers should avoid qualifying how the user might experience the game. Instead, researchers should make clear to the participants: the steps in the process, the time commitment, the actual test (walking with a phone in the park and moving toward and away from others to hear music and sounds that create an experience for walkers. Researchers should in other words, outline the steps in the experience without qualifying the quality or aesthetic of the sounds. Researchers will avoid qualifying data that is desired in test questions; for example, if the question is whether and how users will come together in the field, this should not be explained to the users.

### ***Overview of Trial Process***

Ideally, two researchers will be present at each test, one to demonstrate the iteration and field questions from participants and one to take field notes and record comments and questions on a small hand-held tape recorder. Additionally, one research assistant will come to the field to videotape from afar. If the test requires multiple users in the field, separating for periods of time, ideally a research assistant will accompany the user, still allowing the user some private user experience and the freedom of movement as determined for that test. For example, because *Alter Audio* is a collaborative music experience; as such, most of our tests allow users freedom to come together as they desire. An engineer will accompany the team to the field strictly to assist in making the technology function properly. Users should be advised to address their substantive questions to the two core researchers questions, and avoid asking questions of the camera operator, engineer and research assistants; this assures that all questions and concerns can be recorded by researchers as data. To ensure flexibility and fluid testing, simple questions—i.e. whether a button can be pushed or whether the technology is acting as it should—could be asked of research assistants, who should record those questions on a notepad.

### ***Field Test Steps***

#### ***Introducing Users to the Field Testing Process***

Users are invited to meet at the lab prior to the test, at an appointment time. Introduction to the test should last no longer than 30 minutes, including completion of the questionnaire. It is important to maintain momentum in the testing process, so that users remains active and feel as though they have some agency and power in the testing process.

#### **Researchers will explain to users:**

- a) The general project of MDCN (briefly)- ie to provide experiences and games on cellphones for users in parks.
- b) General project of our team (*Alter Audio*)
- c) The experience to be tested that day. Let users know what they will experience and whether they do it alone or in pairs. Explain length of the experience and length of each piece of the trial. (Good idea to hand out phones at this point for users to hold; leave details for the field.)
- d) Briefly note that the purpose of the day is to get their feedback on what we've made so far.
- e) Any delimitations to users regarding what they can and can't do. IE) *Alter Audio*: explain that researchers will begin each test in appointed spot and give phone to users. In Banff, dangers should be explained, and users should be told tot stay on path, move down path until first story is told and then meet up with researchers again. *Note to researchers*: avoid lengthy descriptions of MDCN project or *Alter Audio*. Avoid descriptions of responses users might have to the experience.
- f) Ask for permission to audiotape and videotape and provide a questionnaire to collect demographic and psychographic data prior to the test. The questionnaire should take not longer than 5-10 minutes to complete.

### ***Field Testing***

- a) Researchers will demonstrate how users will use the audio interface, and any information about GPS points, if relevant and desirable to provide users that information.
- b) Answer user questions about operating the phone
- c) Users take phones and being experience.
- d) Researchers will observe users interacting with/ playing the experience. One researcher takes field notes while the other observes and answers users questions. Notes should attend to user engagement, verbal and body language, and interaction with others and the environment, and anything else of note, such as weather conditions or unexpected behaviors. Researchers will also take note of the park environment—how park users interact with the gamers and how gamers might respond to others.
- e) Researchers will allow users to engage with the experience until they feel they are finished.
- f) After each Alter Audio iteration tested, researchers will discuss general responses to the experience (Iteration Test Questions). Questions and answer exchanges should be recorded on a tape recorder.  
find a place to debrief users that is agreeable to the users; efforts will be made to discuss in the same space in which games were tested to jog user memories.

### ***Debrief Process for Focus Groups or Extended Interviews***

The debrief for Alter Audio will take place back in the lab. Because users tend to give responses immediately, while walking back, researchers should use the tape recorder to avoid missing data. Alternatively, the debrief could happen in Butterfield Park or Grange Park; it is preferable to bring users to the lab for comfort, privacy and to provide snacks and a quick rest on route to the lab.

The debrief for Banff should take place at two points on the trail itself:

- a) a short debrief: at the end of the each narrative story and
- b) full debrief: at the end of the third GPS point, when the experience is completed

Note: if the experience tested brings users back to the trailhead near the lab, users can be taped on route to lab as they discuss and full debrief will occur at lab.

### ***The context of questioning***

Researchers will query users with an open-ended list of questions, encouraging the user to discuss the experience as a narrative. Researchers will take care to not force ideas or experiences into the narrative, avoiding for example contextualizing or qualifying language. When users provide a contextualized response, researchers can then probe that remark, with open-ended questions to fully understand the user's remark. Researchers will seek to obtain permission to audiotape this conversation. Research questions will differ somewhat for each iteration. A list of research questions for the first two iterations follows.

- h) For testing of each iteration, ideally the same users will be employed. However, questions are structured assuming that users do not necessarily have cumulative experience with former iterations.
- i) Note that as iterations become more complex, and especially with Iteration 5-Metaphor, which is directly linked to mountain landscape, the testing needs to be conducted in a mountain, rather than urban, landscape, preferably the distinctive landscape for which the game is designed—that is, Banff or Mount Royal.
- Iteration One A one-person game, played in one location; user will simply test out various possibilities for musical composing on this game, consisting of 8 pre-programmed, keyed, musical and audio sounds that play in a loop on the phone. User chooses which sounds to combine in a looping composition.

## Alter Audio Interview/Focus Group Questions

### General Open Ended Questions for all Alter Audio Iterations

Researchers will ask the following open-ended questions and probe responses that users provide, using user's terms, again taking care not to "lead" the answers:

- Explain your experience of the game. (What did you do, why did you do it, how did it feel?)
- What steps did you take to use the game/experience?
- How did you approach the possibilities of the game?
- What did you hope for in the experience? Was this hope fulfilled?
- How would you describe your experience with the interface? (If no response, give multiple examples, ie difficult, confusing, easy, etc?)
- How would you "term" the experience itself—that is, what did you do with this cell phone? (If user confused, -- would you describe this as a game, something else?)
- When playing the game, what was your goal or aim, if any? (If the user doesn't understand- Did you seek enjoyment or perhaps to investigate the game design? Something else?)
- After initial attempts to play, did you make changes or efforts to otherwise play the game? If so, please explain.
- What was the best part of the experience? The worst?
- Would you play this game again?
- Did you want anything else from the game experience? If so, please describe.
- In your wildest dreams, what would this game allow a user/users to do?

At end of discussion, researcher will share the notes with user, explain his/her understanding to the user and get user's feedback to be sure that it accurately represents the experience.

### Questions for Successive Alter Audio Iterations

#### Alter Audio Iteration Two

Adds proximity, and group activity

Same questions and process plus add these questions:

- Explain your experience with the (Bluetooth) technology.
  - o (If confused-- Did the technology (Bluetooth) work the way you hoped it would? Why or Why not?)
- For those who had experienced former iterations, contrast this experience with the experience of Iteration One .

#### Alter Audio Iteration Three

- Adds proximity- and play for groups and the individual Here the users will test the game in both individual and group setting. Query the user with all above questions, plus:
- Contrast your experience of composing alone and composing with the group.
- What stands out for you as distinctive to each experience?
- Which did you enjoy more, and why? Are there attributes to both scenarios?
- Is it "composing" that is occurring in the individual and group experience situations?

#### **Iteration Four: Data Cache**

Adds data caches All questions above, plus:

- Explain your experience with the data cache technology. (If confused-- Did the technology (Bluetooth) work the way you hoped it would? Why or Why not?)
- For those who had experienced former iterations: does the data cache addition alter the experience substantively, or at all?

#### **Iteration Five: Metaphors**

Should be tested in the region for which it is designed, ie. mountain scenario, preferably Banff:

- On what elements were you most focused during this game—for example, landscape location, metaphors, composing, figuring out the game, etc.
- What was your experience of this kind of focus- (Was it playful, fun, difficult/distracting...)
- For those who had experienced former iterations: In what ways did this game seem different from previous iterations?

#### **Iteration Six: Sampling**

- For those who had experienced former iterations:
- Did this iteration provide new possibilities that were enjoyable for you? In what way?

Questions for successive iterations proceed as such, adding a question distinctive to the added feature of the iteration. It is highly recommended to undertake a pretest for each iteration, using the above testing plan and questions. Researchers should do so in order to note functionality of all test elements, success in obtaining responses from users and noting problems in order to reframe the testing and/ or questions.

## **Intro to Iterative Design Process**

The *Alter Audio* project plan consists of 10 prototype iterations; each successive iteration adds one new user factor to the design. Iterative design differs from incremental design in a number of important manners. Where the latter designs and builds elements of a product in isolation, and completes each prior to the next step, iterative design seeks to prototype an entire experience, learn from the results and then rebuild an entire prototyped experience based on those findings. By definition, iterative design will fail in a number of ways—in a sense, failure is a necessary end in order to perfect the design and create an end product that is functional, and that intended users will use (ie enjoy, find useful, etc).

Each *Alter Audio* iteration then, is a complete experience. Iterations are designed from a highly simple user interface and experience (offering almost no challenge and minor pleasure) to advanced iterations that bring in elements of user interactivity, group collaboration, more complex interfaces and more options for engaging with the technology in coordination with the environment. After each *Alter Audio* iteration is designed and built, researchers will test the prototype, and then provide field tests, allowing users to test the iteration. Data gathered from these testing situations will be incorporated into the design plan, and will alter the already planned successive iterations, either adding new or different features, altering the order in which features are added, etc. Each test will consist of 1-4 users, one Designer, 1 research assistants to film the test, and other research assistants to accompany users as needed. The OCAD team will test the iteration prototypes in the environment take the users to an urban park to test the game

## **Pre-test findings Alter audio Field Trial, September, x, 2006**

Iterations 2-5,