

Pawson, M. and Greenberg, S. (2008)  
Extremely Rapid Usability Testing  
Report 2008-918-31, Department of Computer Science  
University of Calgary, Calgary, Alberta CANADA T2N 1N4. October.

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# Extremely Rapid Usability Testing

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**Abstract**

The trade show booth on the exhibit floor of a conference is traditionally used for company representatives to sell their products and services. However, the trade booth environment also creates an opportunity, for it can give the development team easy access to many varied participants for usability testing. The question is: can we adapt usability testing methods to work in such an environment? Extremely rapid usability testing (ERUT) does just this, where we deploy a combination of questionnaires, interviews, storyboarding, co-discovery and usability testing in a trade show booth environment. We illustrate ERUT in actual use during a busy photographic trade show. It proved effective for actively gathering quality user feedback in a rapid paced environment where time is of the essence.

**Keywords**

Discount usability methods, rapid usability testing, trade shows.

## Introduction

Traditional usability testing typically occurs in a laboratory-like setting. Participants are brought into the test environment, a tester provides tasks to the participant, and the participant is instructed to “think aloud” by verbalizing their thoughts as they perform the tasks. Observers watch how the participant interacts with the product under test, noting both problems and successes. A typical usability test normally takes at least one hour to run through several key tasks. The problem is that it may be quite difficult and/or expensive to motivate people – particularly domain experts – to participate in such a study. While this can be mitigated by running the test in the domain expert’s workplace, this introduces other significant problems.

Another possibility is to use the trade show as a place for conducting usability tests, especially for new versions of a product that would naturally fit the trade show theme. The advantage is obvious: there is a plethora of potential participants present, and because all are engaged by the theme of the trade show, they should be highly motivated to try out – and thus test – new product versions.

Yet there are issues. The trade show is not the laboratory, nor is it the workplace. Trade shows are crowded and bustling venues, where vendors compete with others to attract people to their booths. The trade show exhibit booth is a hectic, noisy, cramped space that exists for three days and could be visited by 500 people or more. Booth visitors can be users, competitors, students, or future customers. Each visitor may spend anywhere from one minute to 60 minutes in the booth. Distractions are rampant. This is not the typical usability test environment! Yet for companies with limited time and resources to get their product to market, a trade show could offer a realistic way to gather a broad brush of domain experts in one place for product testing.

There are evaluation methods within HCI that others developed for time and resource limited environments (e.g., Bauersfeld & Halgren, 1996; Millen, 2000; Thomas, 1996). However, none specifically address running rapid usability tests in a busy trade show or conference exhibit hall booth. Consequently, we developed the Extremely Rapid Usability Testing (ERUT) method for such settings. ERUT is not intended to be a formal exhaustive usability evaluation of the product. Rather, it is an informal discount method that provides insights into the usefulness and usability of primary product features. It is also a pragmatic mash up of HCI evaluation techniques: questionnaires, co-discovery, storyboarding, and observational think-aloud tests, where it takes the best of each method.

ERUT developed opportunistically. The (1<sup>st</sup> author Pawson) and another colleague were invited by Athentech Inc. of Calgary Alberta to attend the PDN PhotoPlus show in New York to perform rapid usability tests on the Perfectly Clear® digital imaging enhancement software. We developed ERUT to quickly gather quality feedback about the usability and usefulness of this product, and to shed significant light on whether Athentech’s unique selling proposition (USP) resonated with the customer. In the remainder of this paper, we describe our experiences developing and using ERUT to evaluate Perfectly Clear® at the PDN PhotoPlus trade show.

## The Product and Context

Perfectly Clear Pro® is digital image enhancement software designed to correct a digital photo to match what the human eye saw when the picture was taken. Without getting into technical details, Athentech developed a process that overcomes camera limitations and produces photos that yield what the photographer saw when capturing the image. They had been licensing this technology to photographic labs, and to industry leaders such as Fuji, Blacks, Ritz, and Walgreens for use in kiosks and mini-labs. Yet they also wanted to enter the professional consumer market. To this end, Athentech regularly attended trade shows to understand the problems photographers face with digital imaging and with existing software tools on the market. They then developed Perfectly Clear Pro®, as their first venture into developing a product for the professional and serious amateur photographer.

Athentech were keen to take an alpha version of Perfectly Clear Pro® to PhotoPlus a major trade show and exposition whose tag line is “...to be on the cutting edge of what’s happening in photography and imaging” (<http://www.photoplusexpo.com>). However, they had not yet performed any usability evaluation. Yet Athentech believed the show represented a tremendous

opportunity not only to get their product in front of many potential customers in a very short time, but to try to understand where the alpha version succeeded and failed. My colleague and I were invited to run this evaluation.

I (1<sup>st</sup> author Pawson) already worked as a usability evaluator, and both of us were experienced in working trade booths from a marketing perspective. Running usability tests in a booth proved quite different from our usual evaluation setting.

- The trade show had strict daily closing times, which meant testing after show hours would not be possible.
- The environment was noisy. While Athentech had chosen a closed booth with a section cordoned off for testing, cordoning was done via curtains.
- Participant selection would be haphazard, as it depended on who we could attract from the general conference milieu.
- Testing time is very limited. Past experience with booth visitors indicated that having 15-20 minutes of a participant's time would be generous. Although some participants would perhaps stay longer, most would fit this in-between talks and visits to other booths.
- Time to immediately reflect on particular study results was limited due to the need to process as many people as possible within the 3 day duration of the show.
- From the participant's perspective, usability testing was only one purpose – the lesser purpose - of the booth. When a visitor stressed business needs over a desire to be a test participant, the tester would have to rapidly switch from wearing a usability testing hat to a sales hat.

A testing regime has to be fluid in order to respond to these constraints. Consequently we designed ERUT to focus on two primary objectives.

Assess the usefulness of the core functionality of the product, i.e. was the product's Unique Selling Proposition (USP) solving a problem that a majority of customers wanted solved?

- Find major usability problems in that core functionality.
- While this meant that some aspects of the software would be ignored, we hoped that ERUT could determine the usefulness and usability of the core product.

## Methodology Details

### ***Booth setup***

The trade booth doubles as both a marketing venue and the usability testing area. While it is possible to have two separate booths, we believe a single one is best as it is the product marketing that attracts the participants (discussed shortly). Still, it is important to isolate the testing area from the direct flow of the convention crowd, perhaps by partitioning the booth into two areas, or to have an 'outer' booth for marketing, with an 'inner' booth for testing. Without an isolated quieter area, the evaluator runs considerable risk of introducing interactions and distractions in the booth between test participants, and those wandering in and out of the booth (IXDA 2007).

In our case, PhotoPlus attracted huge crowds with over 27000 registered participants. To adjust the flow of potential participants and to isolate the test area, we set the booth walls up around the outside perimeter of the allotted booth area assigned by PhotoPlus. The outside of the booth walls were hung with promotional posters and sample pictures of Perfectly Clear® technology, as illustrated in Figure 1. We then created a doorway into the inner booth, which became the test area as illustrated in Figure 2. As discussed below, the Athentech rep would then feed participants through this doorway when we were able to receive them.

### ***Recruiting participants***

Perhaps the biggest advantage of ERUT over a standard usability testing methodology is the ease of access to a large variety of domain experts and potential customers in one place. There is no time spent recruiting participants, dealing with the logistics of scheduling, or losing time due to no-show participants. These issues simply do not exist. A trade booth, if designed well, is



**Figure 1.** The booth's exterior, used for product promotion and marketing. Note the doorway to the interior testing area on the right.

a natural attractant for people. People are at the trade show because they want to be, and they come into the booth because they are interested in the product. Recruiting these people as study participants is just a matter of suggestion.

In our case, the attractant was the pictures hung on the booth wall exteriors that displayed the before and after effects of the Perfectly Clear technology (Figure 1), and the Unique Selling Proposition (USP) delivered by the Athentech representative working the front of the booth. The Athentech representative served as our gatekeeper, where he invited interested potential customers to test the product, while controlling the flow into the testing area. Recruitment works as follows. Interested attendees typically ask the booth representative for a demonstration. While many booths do provide such demonstrations, our representative explained that the product was still in its early stages, and that only those people willing to participate in usability test could try it. Those who volunteered to participate in usability testing were then invited into the booth on a first come, first served basis. Participants felt that they were in control of this process, for it came out of their desire to try the system. To make this work, much of the preliminary process that precedes a usability study was discarded. For example, we did not use written consent forms. Nor did we offer incentives to have people participate in the usability testing (although we did give participants gifts of al-natural chocolate from the Amazon rainforest).

Of course, we could not handle all possible participants due to time constraints. Yet those who could not participate were not necessarily lost opportunities: we scanned in contact information



**Figure 2.** The booth's interior, used as a testing area.

from the badges of several hundred trade show attendees who were interested in trialing (and thus evaluating) a beta copy of the product at a future time.

### **Questionnaires**

We originally planned on a short pre-questionnaire, and an optional post questionnaire (e.g., a satisfaction or a desirability survey). We knew that time would be short in a booth and that participants would be eager to get to the product, so we wanted the questionnaire to be equally short. Thus we focused only on a few key questions that the company considered critical.

Athentech's previous research had already validated that Perfectly Clear was aligned with customer goals. Their concern was with the offerings of recent competitive products on the market. Athentech felt that those products offered a different workflow and unnecessary functionality. Athentech also thought other vendors had understated the limitations of the digital camera in capturing true images. Given this, we targeted our pre-questionnaire to simple demographics (if participants were professional or serious amateur photographers), what software tools they were currently using for their work, and what they were using these tools for.

However, there are tradeoffs. Athentech also wanted to collect additional user feedback on various topics that would help guide their future software development. This would have dramatically increased the size of the questionnaire. We were concerned that customers would be turned off: they were drawn to the usability test (which was in the spirit of trade show demonstrations), but not to the barrage of questions both before and after the test. Balancing the questionnaire so that it met both business and testing needs while respecting the customers' short timelines and interests is a challenge. As discussed later in our 'lessons learnt' section, flexibility was the best approach. Instead of requesting this extra information as part of the written questionnaire, we worked the questions into our conversation with participants while they were doing the task. We were opportunistic: we asked questions when they fit into the flow of activity, but in the interest of time not all questions were asked.

We also found that our post-test survey questionnaire did not work in the context of the booth. They did not fit with the natural rapport of a trade show booth. As one participant said "everything you have done up to now has been great, but this just turns me off".

### ***Choice of tasks***

We develop three tasks ahead of time that were both unique and representative of problems we believed that potential customers wanted solved, and that incorporated the unique selling proposition of Perfectly Clear. This was a modification of an idea used by Chauncey Wilson for testing in a trade show booth (personal communication 2007). We had planned to let participants select the most personally interesting one of these three tasks to do. We thought the choices made would give us insight on what parts of the product the participant perceived as the most useful.

However, we decided that this approach was not the best one. First, we realized that the alpha release was not robust enough to allow people to actually do some of these independent tasks. More importantly, we realized that Perfectly Clear was targeting a specific task workflow - cull and image correction of photos - and those competitors had lost sight of this basic customer need by adding layers of complexity in added functionality. Consequently, we decided to concentrate only on a core task that addressed this specific workflow. If that could not be done by people to their satisfaction, then it wouldn't really matter how well they could do other tasks with the system. Therefore we spent time with Athentech learning about the specific problems photographers faced with image enhancement, and how this was addressed by Perfectly Clear's workflow. From this we created four interrelated scenarios in a photographer's language that we felt were both representational and motivational. These tasks were originally written down on 4 \* 6 cards and were to be given to the participants as they completed each task. However, as in the questionnaire we found the best way to introduce the task was as part of an informal conversation rather than by script. Hence the exact language used to introduce each of the four tasks varied between participants.

While the above may sound like normal task selection and debugging, we want to stress that the short time line forced us to reconsider our tasks. We would likely have time for people to do only a single task, and we needed to ensure that the results were extremely practical.

### ***Co-discovery, Think Aloud, and Active Intervention***

We were concerned that the trade booth could create an intimidating atmosphere for usability testing. We did not know ahead of time how the booth layout would affect participant privacy and distraction, which in turn would hamper the concentration of a single participant asked to "think aloud" while completing a task. We decided to use Co-discovery, where two participants work together to complete a task. Co-discovery yields higher quality verbal communication between paired participants than single participants. The pair typically converse for their own benefit to complete the task, as opposed to a single participant who is communicating solely for the test facilitator's benefit.

In the trade show context, we felt it unreasonable to pair strangers. Instead, we looked for people who visited the booth with a friend or associates, and encouraged them to be our participants. Still, we did use single participants if no pair was around at the moment. In these instances, and given the predicted short test cycles, we used active intervention in order to elicit high quality think aloud comments. This approach was also advocated in a web discussion forum on usability testing at conferences (IXDA, 2007). However, we were surprised to find that we only once had to ask one participant what they were thinking; normally, single participants provided textbook examples of the think aloud technique. We surmise that this is the result of the informality of our private testing area, the relaxed trade show atmosphere of the attendees, and their keen interest in the product.

In practice, we gleaned equally high quality think-aloud and co-discovery comments from both individual and paired participants. We certainly observed the engagement of paired participants with each other as the research has reported. However, we also found that it was quite common for one participant to break off his conversation and attention to the task; the participant would explain her thoughts to us or ask a question, while the partner carried on alone. We used active intervention on both the single and paired participants to work in guiding questions at appropriate times.

### ***Storyboards***

Recording test results in the fast pace, noisy atmosphere of the trade show raises other challenges. We used a modification of an HCI discovery technique described by McQuaid et al. (McQuaid, Goel & McManus, 2003) to shadow and record the 'story' of library visitors. They took

pictures of the visitors as they as they pursued their activities; they printed these pictures and overlaid acetate sheets to record their notes of what they observed; they compiled these into storyboards which they hung on a wall and displayed to stakeholders.

In a similar way, we used hardcopy screen shots of Perfectly Clear to record the story of the paths the participants took in exploring the task. We did not use videotapes or screen-capture software for recording the usability results, as we would not have had the time to revisit, analyze and reflect on these recordings. As well, we were looking for high-level vs. detailed effects; it was unclear if video analysis was worth the effort. The advantages of paper storyboards are the ease in taking notes by simply circling or numbering areas visited, adding annotations as needed, and – perhaps most importantly - the immediacy of the result. The storyboards helped in collating the notes at the end of the day and doing our analysis without having to wade through hours of video tape. However, the storyboards are by no means neat, as annotations were made in a rushed pace. Notes on interesting observations, comments made by the participants, answers to questionnaires could all end up on a storyboard, and these could be hard to decipher days later. Unlike McQuaid et al.'s storyboards, ours were far too messy to show to stakeholders.

## Recommendations

While every trade show and usability testing needs differs, we offer these 'lessons learned' for others to consider within their context (see also practitioner's take-away in Table 1).

***Business comes first.*** In a trade show first environment, the business need comes first. Most companies enter trade shows for marketing, not for testing. More importantly, trade show participants are there to see products, not to test them. Thus one should not expect to do rigorous usability testing in such an environment; incomplete questionnaires and tasks are the norm, and participants may shift their attention to their personal needs vs. keeping strictly to the test regime. Yet this shift of attention is also an opportunity, as it creates a type of contextual interview around the topic of user and business needs while running the test task (it is contextual in the sense that the trade show offerings are often part of the conversation). In fact, our experience from this was that a trade show booth might be the next best thing to observing users in the context of their real environment because they are there for themselves, seeking real solutions to problems they have, and they are primarily in the booth for their own personal gain. The result is very rich customer input on their needs.

***Casual conversation over scripts and questionnaires.*** The best way to engage participants was to drop the usability script and questionnaires, where we used casual conversation instead. In our case, participants had a real need for automatic batch correction of their photos. Event photographers in particular were in the booth because they wanted to know that Perfectly Clear would save them time doing hundreds of image corrections, and allow them to get back to their jobs – shooting photos. They were captivated by the message they had heard from the Athentech representative and were keen to see the software. Introducing ourselves by giving the standard "thank you for participating in our usability test..." patter and then presenting them with consent forms and a pre-test questionnaire was cold and robotic, and did not fit the pace of action. Instead we worked both the business questions and the task into an exploratory conversation. This immediately engaged them, showed respect for their time, and worked with the natural flow of a trade show environment. Participants wanted to talk shop, not be treated as a test subject. They were there to get answers, not to be asked questions. By being very familiar with the questions we wanted to ask, we looked for opportunities to introduce them as part of a conversation during the testing. This was probably the greatest value of the questionnaires – they became our 'talking points'. They helped us pick up on important points made by the participant that otherwise could have gone unnoticed unless one is a domain expert in photography.

***Tasks need to be meaningful.*** The actual tasks done by participants and how they are introduced may also deviate from the script. The trade show setting meant that we needed to introduce the task in a way that was meaningful to the participant. In one case we had a pair of participants who were looking in detail at a photograph and expressed a desire to make the red colors "pop out". Perfectly Clear corrects photos back to the true colors; artistically enhancing colors (typically done using other products on the market) is not a feature. However the

**Table 1 Practitioner's Take Away****Advantages**

1. Light weight rapid gathering of good quality user feedback.
2. Narrow focus on business goals and core functionality produces valuable insights.
3. Easy access to broad brush of credible users.
  - a. Access to domain experts is easy
  - b. No "no show" participants.
  - c. Easily collect user database for future tests.
  - d. Participants are in the booth for their benefit first which yields rich customer input.  
This could also be a disadvantage if it generates false excitement.
4. Fluid – adaptable to change to suit the situation

**Disadvantages**

1. Narrow focus.
  - a. Not looking at the whole picture.
  - b. Core tasks could be successful in isolation.
2. Rapid and hectic environment.
  - a. Key observations lost from interruptions.
  - b. Questionnaires and storyboards are reduced to scribbles.
3. Participants are not in their natural environment where they would use the product.
  - a. Observations are not made in context of real work.
  - b. Participants are in a trade show frame of mind. They could be affected by the excitement in the booth.

software does offer an export function. Thus we changed our task on the fly to fit participant's expectations and workflow. Originally, our final task read, "Now you have completed your enhancements, pick your three best photos and store them as high quality jpegs in a folder of your choice on your computer." We turned their comment around and simply asked them "How would you get that photo into the software of your choice to pop out that red?"

**The test requires a narrow focus on core issues.** Focusing on core issues is critical, not only because time is short (Bauersfeld & Halgren, 1996; Millen, 2000; Thomas, 1996), but because it is likely those core issues will engage participants.. Another advantage of the narrow focus is that it requires all stakeholders to define what the core functionality of the product is, and what they hope to gain from usability testing in such an environment.

**Interruptions are the norm.** Even though participants were in a screened inner booth, interruptions happened. An example includes participant's answering their cell phone. As well, some participants had to leave partway through the test due to conference talks or catching the last train home. Unlike a normal usability test, we could not expect people to set aside a fixed block of time solely for our purposes.

**Participants perceive the test primarily as a demonstration.** The trade show is a place to gather materials and see demonstrations. Even though we told people they were in a usability test, they still thought of it as an opportunity to try out the system, i.e., they did not really dwell on the fact that they were in a usability test. In one case, a participant responded to a cell phone call from a colleague by saying "Yeah, I'm in a demo right now. I want to buy this software, ok bye". To keep in this spirit, our final questions was "would you buy this software"? As well, participants had the opportunity to sign up to get beta-releases of the system.

**Tag teaming and active intervention.** We found the best sessions were when the two experimenters were able to tag team each other rather than working alone. Although we tried working alone, there were times when note-taking disrupted the natural conversation with the participant. Key observations could have been missed, and the participant (whose time is precious) had to wait for the note-taker to catch up. Tag teaming allowed us to engage and disengage with the participant: one of us would write notes while another would pick up with a thread of interest. Tag teaming was a better fit to the trade show atmosphere, where we could engage participants in friendly conversation rather than sitting back quietly and watching. This

active intervention by a team meant that participants were always being observed, that notes were being taken, and that they could talk to us any time.

**Test time is variable.** We originally felt that 20 minutes was the maximum time that we could expect from any participant. In practice, and somewhat surprisingly, most participants stayed much longer than that because they became engaged with the system. We allowed people to stay longer than planned when this happened. This also meant that strict scheduling could not be done. Instead, our 'gatekeeper' would feed us participants as we were able to receive them.

**Participant flow must be regulated.** Because no scheduling is done, we needed some way to control the flow of participants into the test area. In practice, there were times in the booth where participants were let in too soon after a test has been completed, leaving us scrambling to get prepared (we needed about ten minutes between each test to collate our results, finish up any notes and get the material ready for the next test). The problem was that the gatekeeper was busy with his own needs (marketing), and sometimes used the departure of a participant as an (incorrect) cue that we were ready for the next one. It would have been helpful to have had a green/red flag by the doorway for gatekeeper's benefit (red meant busy, green is ready for more test participants).

## Conclusion

ERUT is a valuable methodology to use in public situations where a company exhibits its products. A wide array of customers and potential customers are coming to these exhibits of their own accord. Being able to get product in front of them for their evaluation is very attractive, and for some companies may be the only chance to run usability tests with true domain experts. ERUT, when used with other HCI techniques can be both effective and inexpensive. It can validate learning gained from rapid field methods such as contextual interviews, or from other methods such as heuristic reviews (Thomas, 1996).

There are cautions. As Thomas (1996) notes, the results are "illustrative rather than definitive". This method can provide insights only into usability issues. The results are not gospel and thus one must guard against the project stakeholders who treat this as the only evaluation procedure (especially if the results are very positive). Similarly a trade booth environment can generate its own excitement and could give a false sense product success. There are also valid arguments against discount usability methods (Cockton & Woolrych, 2002) and more debate in the HCI literature regarding collecting user feedback in such environments would be of benefit to us all.

When working a trade booth the participant is in control of the time and its use. Expect interruptions, and be fluid enough to change from a usability tester's hat to the business hat. Remember the participant is in the booth for their benefit first, so your rapport with them in regards to questionnaires and tests tasks must engage them on their level. When this is done well our experience is that extremely rapid usability testing can be an effective way of gathering user feedback in a trade show environment. We look forward to using it again. As a rapid method to get in front of customers and elicit feedback on product direction, it is excellent.

## Acknowledgements

The 1<sup>st</sup> author thanks his colleague and friend Marc Shandro in challenging him to join him at PhotoPlus, and most of all to Athentech Technology Inc. President, and his former mentor, Jim Malcolm and Vice President Brad Malcolm for giving him the opportunity to be engaged in such a unique project.

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