

# Focus Groups for Functional InfoVis Prototype Evaluation: A Case Study

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## ABSTRACT

In this position paper, we describe our experience conducting a focus group for evaluating an Information Visualization system prototype. We concentrate on the method used and how it differs from traditional focus group methodology. Our position is that Information Visualization system prototypes provide exceptional grounds for customized focus group methodologies due to the exploratory nature of many of the tasks these systems are designed to support.

## Categories and Subject Descriptors

H5.m. Information Interfaces and presentation (e.g. HCI);  
Miscellaneous.

## General Terms

Human Factors

## Keywords

Information Visualization Prototype Evaluation, Evaluation Methodology, Focus Group

## 1. INTRODUCTION

Focus groups are often used to receive early feedback on software prototypes. Focus groups provide an excellent opportunity to conduct a free-form discussion with potential users [2]. Frequently, focus groups are conducted so early in the development of a prototype that only a video or mock-ups are made available for participants to view. Mazza described a focus group he conducted featuring mock-ups that allowed participants to view images from the system which he was able to manipulate through rotate and zoom [3]. While we applaud these extremely early attempts at involving potential users in the design of systems, our case study demonstrates the usefulness of conducting a focus group further on in the design and development process, when queries yielding new data for exploration can be performed live.

Information Visualization systems are often characterized by their exploratory nature, presenting unique challenges for evaluation

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[4]. Thus, limiting the exposure of focus group participants to a single narrative track, as might be imposed by a video or mock-up, even a branching one, hampers the evaluation of the system's utility. Participants may be interested in investigating data not pursued in a video or mock-up. Further complications can arise if evaluators select an especially salient narrative track for demonstration, whereas the system may prove difficult to understand when alternative selections or queries are performed.

## 2. METHODOLOGY

We conducted the focus group for Connect 2 Congress as soon as we had a functional prototype [1]. Connect 2 Congress provides scatter plot visualizations of legislative behavior, allowing users to both observe changes over time and focus on individuals or groups of interest. The interface was developed just enough to perform queries and exploration, pursuing the interests of the focus group participants.

The focus group consisted of four participants and two facilitators during a single four-hour session. One of the facilitators operated the software which was connected to a high definition, large display. The other facilitator took notes, recorded a video the session, and assisted with conversational flow. Both facilitators answered and asked questions of participants as necessary.

## 3. UTILITY

Allowing participants to directly interact with the system for themselves would have provided insights into the usability of the interface and widgets but would also have required that we wait even longer to conduct this portion of the evaluation. Indeed, we suggest that allowing the users to directly interact with the system may have proved a confounding factor in the evaluation of utility. Participants may have been confused or hampered by imperfections in the response time of the system or interface bugs. Because the participants were unable to operate the software directly, we were unable to draw any conclusions about the usability of the prototype.

We were, however, able to gain exceptional insight into the utility of the system through visibility into the kinds of questions that the participants were interested in and their understanding of the system's support for these questions. Participants issued queries in the form of statements, such as "It would be very interesting to see what Obama was doing before the primaries." Many times, other participants would agree that such a question was interesting, but would add another component to the query.

The facilitators would then ask the group how they would go about answering these questions using the system. Once

consensus was reached, the facilitator would perform the operations in the system. Viewing the results frequently lead directly to additional questions and system queries, sometimes from different participants than the initial query. The conversational nature of the focus group proved invaluable for expanding on these kinds of exploratory questions since participants would often build off of one another's ideas, resulting in unanticipated queries and conclusions.

#### **4. CONCLUSIONS AND FUTURE WORK**

We suggest that developers of Information Visualization systems perform focus group evaluations on their prototypes as soon as a functional prototype is available. Although these evaluations will not serve as a usability test, valuable insights into the exploratory interests of the users as well as their level of trust with the visual mappings and data models selected can be gained. The cost of training users is high, but executing verbal queries is very efficient. The value of these verbal queries is amplified by the conversational nature of focus groups. Focus group evaluations

are particularly well suited to evaluation of Information Visualization systems.

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