ThinkClick: A Case Study of a Large Group Decision Support System (LGDSS)

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INTRODUCTION

Getting a large audience to actively participate in a lecture is a challenge faced by many lecturers. The value of active participation is well supported in current research with significant contribution made by the introduction of electronic response systems (ERS). ERS allows each member of the audience to participate by using a hand-held device (like a TV remote control), responding to (usually) multiple-choice questions presented on a board.

This article is introducing a new approach to the use of ERS, making the audience engage in a decision-making process based on multi-attribute utility theory (MAUT), a commonly used theory in decision making, aiming to:

- Help conference participants, in a large group setting, prioritize suggestions and action items developed over the previous days of a conference, drawing on discussions held in concurrent, small group break out sessions.
- Organize those suggestions/items into a prioritized list that reflects the discussions and honors individual participant voice.
- Generate a list, based on the group organization process that will direct future innovation for conference participants and organizers.
- Present the collective knowledge from the conference in a way that participants can see themselves as contributing partners in the conference outcome statements.

This article, then, describes a case study of decision making in a large audience, keeping each participant involved in a meaningful process of an elaborated analysis of action items. The technology, the process, and the experiment are presented as a study of the feasibility of using such systems in large audiences.

We introduce here the term large group decision support system (LGDSS) to describe the process of using technology to assist a large audience in making decisions.

BACKGROUND

Invited to "harvest" the knowledge in an international development conference, we identified the last agenda item, prioritizing a list of 20 action items proposed by the conference participants in four different theme groups, during group sessions, throughout the conference, to be of particular concern. The issue of honoring participant voice was of specific concern for us as we knew that concerns about language, gender, self-efficacy, age, experience, and cultural differences might privilege some participant voices over others.

Prioritizing a list of action items is a decision-making process. A democratic election process is usually a matter of prioritizing a list of leaders or parties, based on a majority vote. The simplest approach to prioritizing a list of action items would have been, then, voting for each of the proposed items and arranging the items based on the number of votes each item received. The limitation of such an approach is in its superficiality. Items will be voted upon without deep consideration of the item's attributes, especially since the action items were initially proposed in separate interest groups without discussing them at the assembly.

Searching for the most suitable solution, we had chosen to use a MAUT-based methodology (explained later), as MAUT provide a method for analyzing alterna-

tives based on a common list of attributes, relevant to the final goal. Attempting to engage all participants in the process has led to the choice of an ERS (clickers).

Clickers are electronic devises (Figure 1) that send a signal to a sensor, connected to a computer, so each clicker is uniquely identified and added as a data point. Using clickers in a large audience lecture hall, allowing each user with a clicker to add his/her input to the data collection process.

The clickers system we have been using is called Classroom Performance System (CPS) by eInstruction (n.d.).

MAUT

Recognizing that we would be need to prioritize a list of 20 action items, while engaging a group of over 50 participants, at the end of a complex two-day conference forced us to search for a decision-making process. We knew that time was critical—the participants would be tired, eager to get on their way, and somewhat varied in their skills and abilities with technology. We needed to choose between two models of decision-making processes that might be suitable for the task: MAUT, referred to in MindTools (n.d.)[1] as Grid Analysis, Decision Matrix Analysis, and Pugh Matrix Analysis. We considered a more recent model, a similar model, called analytic hierarchy process (AHP) (Saaty 1977) but this model requires a more rigorous criteria-weighing analysis. Concerned with the complex nature of AHP that might be needed for a more demanding decision-making situations, we chose MAUT. We also knew the recording of participant responses and the compilation of the findings would need to be done immediately, in front of the participants for transparency, so simplicity and expediency would be critical factors to engage the participants.

Large group, lecture hall interactive activities using a "clicker" have been around since the introduction of ERSs 38 years ago. A comprehensive overview of the research literature or ERS by Judson and Daiyo (2002) shows that users favor the use of ERS independently of the underlying pedagogy of the lecture and that "interactive engagement can be well facilitated in large lecture halls through the use of ERS" (p. 177). Further, the use of chart paper and stick on dots for ranking/prioritizing have been used in conferences and seminars for years. MAUT honors both these approaches, while using technology to allow anonymity and individual voice.

Searching for a mean to engage a large audience with the goals presented in the introduction, the use of ERS was only natural.

Our major concern focused on the participants' engagement. We suspected that having the audience

Figure 1. A clicker

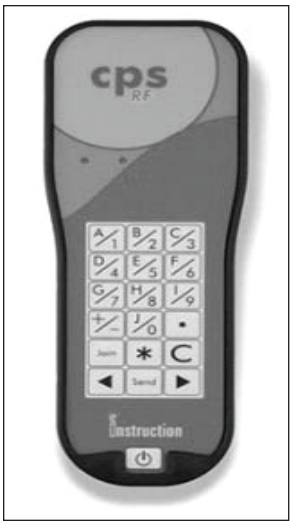

Figure 2. The MAUT process