Work In Progress – The “eyes” have it: The Use of Affective Imagery to Capture Perceptions

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Abstract – This work in progress introduces an innovative database tool that develops valid, reliable and interesting surveys for the visualizers generation. Undergraduate researchers use affective imagery survey techniques to create a pilot study database and tool to assess the perceptions of the IT discipline.

Index Terms – Affective Imagery, Student Perceptions, Visual Surveys

INTRODUCTION

Acquiring student responses to surveys is becoming progressively more difficult. Indeed, researchers are reporting increasingly dismal response rates when using typical online, paper-based, and/or phone surveys. The reports are even bleaker when researchers try to use these survey methods for data collection when assessing the traditional college-aged (18-23) population.

Without graphics it is difficult to keep this generation of students engaged. The current generation of students has significantly shorter attention spans than the generation of students 10 years ago, and is, for the most part, visually stimulated [3]. Indeed, we live in an era of visual information processing, which means that researchers and academics are competing for students’ attention against iPods, camera phones, and graphic-intensive video games [6, 7].

RESEARCH GOALS

In response to the challenges of obtaining valid responses and respondent engagement, this research has focused on affective imagery techniques (evaluative feelings associated with concepts or stimuli) for creating a database repository to assist in visual survey design. We are endeavoring to create a valid and reliable database repository of questions and images to capture the attention of traditional college-aged students.

Further, a necessary by-product of this research will be a tool that will speed up the development of valid, reliable and interesting surveys for the researchers and respondents.

BACKGROUND

The “Visualizers” Generation

According to research [5,7], the visualizers generation, also known as the Internet generation, the iPod generation, and the digital generation, prefer media driven teaching and learning methods and spend considerably more time – than past generations – playing video games, surfing the Internet, and playing online computer games.

Stephenson and Peckham [7] reported how visualization was used as a recruiting and retention tool for students in computer science and mathematics and to solve interdisciplinary research problems. Their research serves as the foundation for the current research. During the pilot study of the affective imagery database tool, undergraduate research student developed an affective imagery survey to measure the questions used by Stephenson and Peckham and other computer science perception surveys [e.g. 5].

Imagery Surveys

Literature on visual design indicates that the use of numbers, symbols, and graphics, in addition to words, impact how respondents answer both paper and web surveys. In fact, strategic use of visual design in surveys can augment response efficiency and enhance the respondents’ survey experience – thereby, increasing survey completion rates [2]. According to Gwartney [4], younger and more educated respondents prefer affective imagery survey techniques over phone surveys and interviews.

Affective images represent the evaluative feelings of good/positive or bad/negative that people associate with particular concepts or stimuli; these feelings occur quickly and unconsciously, guiding individuals’ evaluations and decision-making [4]. Word association questions act as stimulus for the affective images, all of which are designed to elicit short, open-ended responses. For the purposes of this research, we evoke affective images with open-ended word association questions in the form: “What is the first thought or image that comes to mind when you hear the statement ___.” Figure 1 provides a demonstration of the open-ended word associations.
**IMAGE DATABASE DEVELOPMENT**

A total of 150 images were included in the preliminary image repository. Images were collected via online digital repositories (e.g., Microsoft images and bigstockphoto.com) and associated with simple words and phrases related to positive, negative, or neutral perceptions. The preliminary images selected were based on ten open-ended questions assessing perceptions of the IT discipline [5].

The content validity of the picture repository was tested using social science and organizational behavior experts. These analyses resulted in a revised survey of 14 questions. Each question had eight different response options and one neutral (grey square).

**PILOT STUDY**

A pilot study was conducted with twenty-six students enrolled in two information technology courses, an information technology service learning course (N=11) and an introductory database course (N=15). Participants were asked to complete an online text-based survey and an online affective imagery survey. Figure 2 shows examples of the survey items. In order to prevent selection bias, the participants were randomly assigned to the ordering of the surveys and survey questions/responses. Participation was voluntary and the survey began with an informed consent form.

Consistent with previous literature, our results show that there is a significant difference in perceptions about IT students and IT professionals of students within and outside of the IT discipline [1]. Our results show that the affective imagery survey technique was as reliable as other online survey techniques. In reviewing survey development literature, this is, without a doubt, one of the most noteworthy findings of this research.

Beyond the empirical data, qualitative data was collected. This data was based on the facial expressions and verbal comments provided during the survey administration period. Over half of the participants mentioned that the survey was “fun” reminded them of surveys they used on Facebook (a social networking website).

**FUTURE WORK**

In order to further validate the affective imagery database repository, we plan to collect more generalizable data, we will expand our survey repository to include questions and images from other disciplines and other topics of interest and replicate our pilot study using multi-institutional and multi-corporation participation of students and professionals, within and outside of the IT discipline.

Further, in the near future, we plan test the creation time and validity of paper-based surveys versus affective imagery surveys. An easy-to-use graphical user interface will allow users to enter images and keywords in the database. The tool will also include an interface for piloting the newly developed survey for validity and reliability.

The researchers understand that affective imagery surveys are not the “silver bullet” to low response rate in the visualizers generation. Affective imagery surveys are limited to open-ended surveys (e.g. perception). We note that this form of surveying assesses and accesses into the “visualizer” generation from a perspective where other survey methodologies are lacking – visual appeal.

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**REFERENCES**


