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Eyes Don't Lie: Student Evaluation of Teachers Using Participant Facial Expressions

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Abstract: Organizations' training departments must continue to find ways to demonstrate their contribution. Very frequently, this is accomplished with satisfaction surveys. While only one piece of the effectiveness puzzle, it is affected by response rates and data accuracy. A potential solution to both challenges may lie in a measure of learners' emotional state as a proxy for satisfaction.

Introduction

Training effectiveness evaluations take place according to many models, one of which is Phillips' (1997) five-level model. According to this model, level one evaluations measure learner reaction, level two measures learner achievement, level three measures transfer of training, level four measures training impact on the organization, and level five measures return on investment. Typically, level one evaluations use post-course surveys whereby participants provide data on the training. Results can be inaccurate due to poor instrument design, low response rates, and participant readability issues (Russ-Eft & Preskill, 2009). A proposed alternative to overcome these limitations is the use of facial expressions during training sessions. A window to the emotional state of a person, facial expressions happen without our need to tell ourselves how we feel and how to display this emotion to others (Dursun, Emül, & Gençöz, 2010). Additionally, "some facial muscle actions associated with emotion cannot be consciously inhibited" (Porter, ten Brinke, & Wallace, 2012, p. 23). This provides a unique opportunity for program evaluators to collect accurate reaction data from all training participants with minimal risk and maximum return rate.

Purpose and Objectives

This study's purpose is to establish proof of concept for an alternative training participant satisfaction evaluation method. The study is guided by the following research questions:

1. Can facial expression data during training sessions be successfully collected and analyzed to make claims of participant satisfaction?
2. What can participant facial expressions indicate regarding participant satisfaction?

Additionally, the data will be used to test the following hypothesis:

H1: There is a positive correlation between facial expression and participant satisfaction.

Research Design

This study will take place in a customer service workplace setting with participants of continuing education training. At the start of each session, participants will be informed about the study and its purpose, with an opportunity to participate or not participate. The session will start by collecting demographic and workplace data via a short survey. Consenting participants will receive a numbered armband to connect facial image and demographic data. During the training session, multiple video cameras will be used to capture participants' images and to ensure clear visibility. From the video, still images will be captured every five minutes for analysis. The primary researcher and two other raters will

code each participant's facial expression using Ekman and Friesen's (1978) Facial Action Coding System (FACS) by the principle researcher and two other raters. Interrater reliability will be calculated to establish validity of the results. These data will be compared to the demographic and post-course evaluation data to identify relationships or differences among participants. Finally, a short post-course evaluation will collect participant reaction to the training.

Relevance and Contributions

This study is relevant to adult education by providing a new perspective on program evaluation. A similar study was conducted to explore participants' affective states and their connection to cognition while interacting with an intelligent tutoring system (Craig, D'Mello, Witherspoon, & Graesser, 2008), but not for the purpose of learner satisfaction. If the proposed method is validated, new evaluation opportunities will emerge, to include automatic facial expression detection programs for real-time satisfaction measurement. Results of this study contribute an option for greater evaluative flexibility through unobtrusive naturalistic observations in place of time-consuming surveys. It can also be useful for instructors as a dynamic feedback mechanism to gauge learner involvement and understanding. Additionally, this method could be valuable in the virtual learning environment, whether the program is delivered synchronously or asynchronously.

While just one piece of the evaluation puzzle, having valid and reliable methods to measure learner satisfaction as part of a chain of evidence leading to return on investment is a major benefit to training program stakeholders.

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