

Dialing in on new communication research technology: Exploring opportunities for continuous response measurement in agricultural communications

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Introduction / Need for Innovation

The dynamic nature of communication leads individuals to continuously change cognitive states as they understand and react to media messages (Biocca, David, & West, 1994). From a perspective of measurement, Maurer and Reinemann (2009) argued stand-alone, post-stimulus questionnaires “seldom lead to valid results about the causes of respondent’s opinions and opinion changes” (p. 2). However, analyzing responses from moment-to-moment measures allows researchers to gain insights on individual preferences as the component unfolds and is experienced (Ramanathan & McGill, 2007).

Continuous Response Management (CRM) is a method used to track real-time, concurrent, individual consumer responses to media messages. It is a unique measure in the sense that it helps reveal critical moments that impact a participant’s perception or sentiment about an experience in real-time (Izenson, 2016). From a data analysis standpoint, CRM allows researchers to examine reactions to key moments or content elements within a stimulus to continuously measure the believability of communication messages (Biocca et al., 1994), helping to mitigate one of the biggest problems in communications research – flawed recall and memory bias (Izenson, 2016). Goodwin, Chiarelli, and Irani (2011) argued much can be gained from understanding what specific messages consumers find favorable and unfavorable, what factors make them favorable or unfavorable, and what they want to hear and see in messages. CRM research holds the potential to help communication and marketing professionals in the agricultural industry understand what messages resonate with consumers.

How it Works

CRM tracks moment-to-moment responses from participants. It is employed using a remote control-like device that individuals use to continuously evaluate media content (Weaver, Huck, & Brosius, 2009) and is easily integrated into experimental studies (Keppel, 1982). Software packages, such as Perception Analyzer, allow the researcher to set up the test, collect and analyze data. Participants are provided and trained with an input device and asked to adjust the device to report their responses to the stimuli. Many CRM systems’ input devices allow the participant to report indifference by placing their dial at a midpoint (Biocca et al., 1994). Oftentimes, the dial or keypad input devices are hand-held. CRM systems can be lab or field-based.

Participant responses are recorded wirelessly and converted to visual graphs and quantitative data stored on a computer (Weaver et al., 2009). Analysis of the hand-dial data allows the researcher to pinpoint reactions with specific moments during the message. This creates an opportunity for the researcher to compare and connect CRM responses to singular verbal or visual elements within the stimulus. Data can be visually analyzed through a series of means, or by analyzing the peaks and troughs (Biocca et al., 1994; Cummins, Smith, Callison, & Mukhtar, 2018; Izenson, 2016).

Results to Date/Implications

In the agricultural communications discipline specifically, two CRM studies have been conducted. Tarpley (2017) used CRM to determine the comfort ratings of consumers as they

viewed videos regarding the slaughter of livestock. In another study, LaGrande (2018) used CRM to measure levels of trust in different agricultural messages within a pro-agriculture video. Extension has also been a focus of CRM studies. Cummins et al. (2018) utilized CRM to identify different what visual elements extension agents preferred when learning about mitigating greenhouse gas emissions.

The two agricultural communications studies were built upon cross-disciplinary relationships between faculty members and students. Before beginning their studies, the graduate student researchers enrolled in an introductory research communication technology course offered by the College of Media and Communications at Texas Tech University. CRM experts in the College of Media and Communications provided instruction on how to use the CRM technology and software, in addition to their dial-testing lab on campus and assisted the agricultural communications students throughout their research studies.

Future Plans/Advice to Others

Students at Texas Tech University will continue to be encouraged to take courses outside of agricultural communications that focus on CRM and other unique research tools. CRM provides opportunity to not only analyze qualities of media messages, but can also be used to evaluate live presentations, speakers, and speeches (Maurer & Reinemann, 2009), which may serve as an evaluation method to be used in agricultural education and instruction. CRM studies could also help to address the questions associated with the American Association for Agricultural Education's priority area aimed at finding effective methods, models and programs to inform public opinion about agriculture and natural resources (Roberts, Harder, & Brashears, 2016). However, CRM is limited to measuring only one construct or dimension at a time. Therefore, potential CRM studies must be focused and precise. As CRM studies are considered, researchers should keep in mind this limitation, and exercise caution in crafting research objectives.

For those who want to use this research methodology, we recommend seeking research partners on your campus who may already have this equipment available. Partnering would also help offset costs associated with conducting CRM research and create research collaboration opportunities. Future CRM studies are encouraged because this method provides a potential solution to measure effectiveness and persuasiveness of agricultural messages. Researchers and practitioners are encouraged to use CRM to test messages as they are developed and use the results to create more effective messaging. Lastly, to better understand CRM data, it can be insightful to collect descriptive and qualitative data via survey instruments administered directly to participants after the CRM test.

Costs/Resources Needed

It is possible CRM's lack of prevalence in social science is due to the costs associated with the tools needed (Maurer & Reinemann, 2009). The Perception Analyzer software ranges in cost depending on the edition and number of dials desired. The most basic package, which contains 30 wireless dials, and one software license currently costs approximately \$17,000. An additional expense involves training fees, which between \$2,500 and \$3,500. Partnering with research units that already have the equipment and expertise would be a less expensive option although they may charge to use their facilities.

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