

The State of the Surveys: Framing and Informing Research on Games and Learning

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Introduction: Why Use Surveys?

As the field of games and learning grows, the need for varied research approaches to inform and shape ongoing work in the areas of policy, design, development, and implementation grows as well. What do we know about the context(s) for games in formal and informal learning settings? What are the attitudes, beliefs, and practices of players, learners, educators, parents, policy-makers, and designers? How do these factors interact to create complex settings for game-use? These kinds of questions are relevant to any learning and design endeavor. But as a distinct subfield, games and learning needs its own research designs and its own answers to these questions to inform our work.

Surveys are a methodology designed to frame a big-picture view of a question, topic, or area. There have been many recent surveys on topics such as: teacher attitudes and practices around games and learning (e.g., VeraQuest, 2012); how teachers view student informal game play and media use (Common Sense Media, 2012), as well as surveys on more general attitudes about technology conducted by Pew (e.g., Purcell, Heaps, Buchanan, & Friedrich, 2013) and others. Surveys allow for questions to be asked of a broad sample of respondents in order to “take the pulse” of practitioners, surface issues, and indicate relationships between various factors that might be pursued further in follow-up research. But surveys face a range of challenges as well. Sampling issues are foremost; how do you know if your sample is representative? Surveys primarily yield either descriptive data, or correlations among variables, as opposed to identifying causal or predictive relationships. Definitions of constructs can be challenging: How do you know if survey respondents interpret questions the way they were intended? Surveys often provide a starting point for deeper investigation.

This panel highlighted research questions addressed by recent surveys about games and learning, briefly shared what has been learned from these surveys, and invited discussion among both panelists and the audience to identify high-need areas for further research.

Common Sense Media: Teacher and Parent Attitudes, and Game Use

Common Sense Media tracks national (U.S.) patterns in media use among youth 0-18. In addition, we conduct landscape surveys of parents and teachers regarding technology, learning, and education to inform our ratings and reviews of games, mobile apps, and web-based products for learning potential.

The presentation drew from various Common Sense studies to frame implications for surveys as a methodology for games in learning. First, we inquired *why* surveys are a useful research tool, pointing to their importance for outlining broad contours or trends about a field or topic, for describing a landscape, and identifying areas worthy of deeper examination. We presented examples of broad data trends from our (1) Zero to Eight surveys (2011, 2013) and (2) National Study of Educators (2013, 2014 - also known as “Teaching with Technology”) that documented, respectively, (1) an explosive growth in mobile use at home among U.S. kids 0-8, and (2) consistency in shared, centralized use of devices in U.S. schools over time.

Second, the presentation asked *what types* of topics are appropriate to survey, using the example of key construct definitions for “video game”, “learning”, and “educational”. Data from various Common Sense studies (View from the Classroom, 2012; Digital Media and Learning Attitudes, 2011; Zero to Eight, 2013) indicate that survey respondents (parents and teachers) may be stereotyping video games negatively and considering them in a narrow light, and may be interpreting “learning” and “educational” in similarly narrow, traditional, academically-focused ways relative to the field’s definition of them. The presentation encouraged discussion among the audience around how best to approach definitions of fundamental concepts for use in surveys. Finally, drawing on examples (e.g., “thinking about just yesterday, how many minutes...” and “in this school year, how often...”) from our surveys, the presentation summarized the importance of using specific behavioral anchors in survey questions to improve the reliability and validity of responses.

Joan Ganz Cooney Center: Game-using Teachers – Practices & Perceptions

Digital game-based teaching requires fundamental shifts in one's pedagogical approaches to content (Mishra & Koehler, 2006), even among the younger teachers who may have grown up playing games (Lei, 2009). Where are U.S. teachers today with respect to integrating digital games into instruction? What kinds of teachers teach with games? What results do they see, and with which students? What do they struggle with most? To answer these questions, the Joan Ganz Cooney Center surveyed 694 K-8 teachers from across the U.S. on how they're using games in their classrooms; professional development (PD) around and barriers to integrating games in instruction; and perceptions of the effectiveness of games in delivering content, assessing, and motivating students. The survey also included the responses of *non*-game-using teachers, a population that could provide greater insight into why games are not being integrated into classroom instruction. VeraQuest, a professional survey firm, fielded the study in fall of 2013 with an omnibus survey panel, which comprised over 2 million members enrolled through a number of different online panels in the U.S. Respondents receive points for the surveys they complete, which can be redeemed for a variety of products. VeraQuest randomly selected 694 adult respondents from a targeted panel of K-8 classroom teachers such that the sample would be generally proportional of the demographic and geographic strata of U.S. teachers.

The Cooney Center's presentation focused on a set of analyses aimed at understanding the different types of teachers who use digital games to teach. To generate these profiles, we conducted a cluster analysis, which involved running a select set of variables (particular characteristics gathered on each survey respondent) through a statistical model, and allowing subgroups within the larger population to emerge based on their similarities and differences around these variables. The four resulting profiles reflect the varying levels of *support* that teachers receive around these practices, and their varying *dispositions* toward using games to teach. Although exploratory in nature, we believe these profiles serve as a starting point for designing games, tools, resources, and training programs that can better support teachers with diverse needs and experiences in their use of games to teach.

A-GAMES: How do Teachers Use Games for Formative Assessment?

The Analyzing Games for Assessment in Math, ELA/Social Studies, and Science Project (A-GAMES) is designed to investigate how features of educational video games intended to support classroom formative assessment are understood and used by teachers. Formative assessment can be a valuable classroom practice, when used well (Black & William, 2009). Game designers include features they hope are useful to support formative assessment, including student progress reports, leaderboards, and tools to allow students to reflect and self-report learning. But what do we know about how these features are used? What do we know about how game-using teachers think about formative assessment and look to games as part of their formative assessment toolkit?

To investigate these questions, A-GAMES surveyed K-12 teachers in the U.S. in fall of 2012. The survey asked about formative assessment practices, classroom game use, and game use for formative assessment. The goal of the survey was to identify how game-using teachers conceive of the goals of formative assessment, what they think it is good for (with or without games), and how they currently use games for formative assessment. The survey is a backdrop to a series of case studies of teachers using educational video games, accessed through BrainPOP's GameUp platform (<http://brainpop.com/games>), that represent a range of formative assessment design features. Our goal is to use the survey and the case studies to inform the design of future video games, curriculum and PD to increase teachers' capability to use games for formative assessment.

What Happened in the Panel Session?

The session was well attended by an audience that was eager to think together about a range of methodological issues related to the use of surveys. All panelists played key roles in the design of recent prominent surveys in games and learning. Each discussed the objectives and findings of their surveys, as well as the limitations. After the brief presentations, the floor was opened for questions.

The questions opened with an inquiry about how each presenter dealt with issues of sampling and selectivity. Panelists described various approaches to sampling. For instance, the Joan Ganz Cooney Center hired a professional survey firm with a standing panel of respondents. The A-GAMES project used a convenience sample, placing their survey online and inviting responses. In both cases, researchers compared the overall response demographics to national databases such as the Schools and Staffing Survey (<http://nces.ed.gov/surveys/sass/>). Common Sense Media used a more comprehensive approach to sampling, seeking representativeness along multiple dimensions. This was both time-consuming and expensive, involving, for instance, providing laptop computers to families for purposes of completing the survey. Selection bias was also considered. For instance, the A-GAMES survey was announced to potential respondents through games and education web sites and social

media feeds. Did this result in a response population biased towards games? The most important consideration is the claims one can make with the survey data. For instance, if issues of equity/social justice were the point of the survey, it would be critical to make sure your response population was balanced in terms of socio-economic status, race, and similar factors. In such a case, the more expensive approach taken by Common Sense Media is warranted. In the case of A-GAMES, where the surveys are meant to provide a back-drop to case studies, the convenience sampling approach was warranted, even if the claims that can be made from the data are limited.

Another question dealt with potential challenges in gaining Institutional Review Board or Human Subjects approval. None of the panelists found this to be challenging, in large part due to the non-identifiable nature of their survey data collection. The A-GAMES project reported that surveys are usually granted “exempt” status by their institutions, especially when they are designed to be anonymous. Furthermore, taking the survey is usually construed as giving consent to participate in research, so separate consent processes are not required.

A final area of questioning focused on the design of items/questions for surveys. How do you gain confidence that survey respondents perceive questions they way they were intended? The A-GAMES panelist pointed to a particular approach known as “cognitive interviewing” (Desimone, 2009), an approach that employs interviews and think-alouds while piloting the survey. All panelists stressed the importance of providing definitions and examples of what the question is looking for. For instance, the A-GAMES survey included a definition of formative assessment. Socially-desirable responses are also problematic – when teachers give the answer they think is *better*, as opposed to what is actually true of them. Panelists stressed that emphasizing anonymity is one approach to minimizing this issue. Another is to keep survey items focused on *behaviors* instead of on *feelings* or *opinions*.

Final Thoughts

This panel was one of the first sessions at GLS to be focused exclusively on research methodology, and we were pleased both with the large turnout and with the spirited and engaged discussion among panelists and audience members. The session ended with a statement of the importance of having methodological discussions as the field of games and learning continues to evolve.

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