Evaluating Event Effectiveness across Alternate Platforms

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EVALUATING EVENT EFFECTIVENESS ACROSS ALTERNATE PLATFORMS

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Organizations are rapidly adopting new technologies and have justified their return on investment by examining new attendee rates, “click throughs” on links, and company-specific metrics. Despite advances in technology and growing consumer dependence on electronics, the meeting and events industry has been slow to adopt IT advances for fear of cannibalization. The purpose of this study was to gather foundational knowledge of how various event platforms, such as face to face and online, can affect overall event effectiveness. Variables examined include attendee satisfaction, loyalty, and content retention. This research used a multimethod approach in which one experimental study and one field study were conducted. The researchers analyzed three meeting platforms in each study: face to face, online, and online with moderator. The findings suggest that meetings with more difficult content should utilize in-person or online with moderator sessions to increase attendee satisfaction, loyalty, and content retention. For meetings with less difficult content, the findings suggest that it is not cost effective to pay for a moderator in the online session. This research has important implications for improving the quality of meeting attendees’ experiences while achieving an organization’s set objective. Additionally, this study has implications for event-related areas to include exhibitors, sponsors, and audio-visual providers.

Key words: Event; Convention; Online; Face to face; Moderator; Satisfaction; Loyalty; Content retention

Introduction

As technology continues to influence younger generations and demand a commanding presence in the workplace, more industries are incorporating these advances. The meeting and events industry is no exception and the rise of technology in events cannot be ignored. Faced with the growing demands of younger generations, in addition to steep budget cuts during the recession, meeting
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planners and organizations must find the right balance for attendees and the bottom line.

Although there has been significant industry and academic attention on technology and generational influences, a major piece has yet to be explored. The driving force behind a meeting, and arguably the most important, is content. Content is defined as the subjects or topics covered in a meeting, expressed through some medium such as a speech, handout, presentation, or any alternative platform. Companies are rapidly adopting new technologies and have justified their return on investment (ROI) by examining new attendee rates, “click throughs” on links, and conversion rates; that is, participants who attend an online meeting one year and the in-person meeting the next year. These are important factors, but how much of the information presented is actually retained? As more organizations are incorporating technology, both behind the scenes and directly with attendees, this variable should be examined in addition to attendee satisfaction and loyalty metrics.

There are several ways a guest can attend a conference. The scope of technological applications in the meetings and events industry ranges from desktop sharing and webcasts to fully immersive 3D environments and online multiday conferences with tradeshows. The purpose of this research is to evaluate how different platforms influence content retention, satisfaction, and loyalty. In events overall, attendees generally have three different ways to receive the conference content: by attending the convention in person during the live session (in person), by viewing the content on the computer and interacting with an online moderator from their own personal computers from any location while the conference is underway (online with moderator), or by logging into the web portal after the conference is completed and viewing the content after the fact (playback). This research provides important insight into the effects of technology on attendee outcomes using different platforms within a single event. The results are not only relevant to academia and the events industry, but also to distance education programs, human resources training programs, and any industry that holds educational-based meetings. This study proposes the following overarching research question: Does the mode of attending the meeting affect the amount of content that an attendee retains and overall attendee satisfaction and loyalty?

There is a considerable amount of terminology used in this article. The following definitions are from the Convention Industry Council [CIC] (2011) and are used throughout this research. Terms that are used interchangeably throughout the article are noted. It is important that we define these terms as sometimes they are used incorrectly throughout academia and industry.

1. Convention: A gathering of delegates, representatives, and members of a membership or industry organization convened for a common purpose. Common features include educational sessions, committee meetings, social functions, and meetings to conduct the governance business of the organization. Conventions are typically recurring events with specific, established timing. This term is often used interchangeably with conferences, events, and meetings.

2. Event technology: Any technical/technology needs to support a meeting or event. This includes items such as audio-visual, computers, software, power, networking, and connectivity.

3. Objective: Formalized statement of outcomes to be anticipated as a result of the educational process.

4. Streaming: The software that makes Webcasting work. These “stream” audio and video from a central source, or media server, to recipients on their personal computers. In this research specifically, this is also referred to as online with moderator.

Literature Review

There are two overarching attendee questions—whether to attend a conference or not and which conference to attend. Assuming that the meeting is not required, attendance usually depends on the level of interest in the meeting objectives and the priority a potential attendee assigns to the event (Zhang, Leung, & Qu, 2007). Historically, literature related to meetings and events has focused on attendees’ motivations and/or inhibitors for attendance (Fenich, Scott-Halsell, & Hashimoto, 2011; Tanford, Montgomery, & Nelson, 2012), attendee satisfaction and retention (Yoo & Chon, 2010),
and site selection criteria (Baloglu & Love, 2001; Fawzy, 2008; Rompf, Breiter, & Severt, 2008). Extant research has also focused on attendee decision making by analyzing specific event satisfaction outcomes. Research by D. Severt, Wang, Chen, and Breiter (2007) found that educational benefits are stronger predictors of satisfaction and behavioral intentions than opportunities for networking. J. Lee and Min (2013) found that word of mouth, education, and social networking play more powerful roles in event satisfaction than site-specific dimensions.

**Attendee Satisfaction and Loyalty**

There has been a significant body of literature relating to conventions in terms of decision making. Opperman and Chon (1997) proposed a model for participant decision making that includes four broad factors: location, conference factors, intervening opportunities, and personal/business reasons. These are further subdivided into more detailed areas. In their research, and newer research that has cited their model, the researchers have not advanced to the next step and related these areas back to overall satisfaction. Although there have been numerous satisfaction studies focusing on service industries, relatively few studies have examined this in a convention setting (Tanford et al., 2012). The few studies that have examined this area specifically have found that significant determinants of attendee satisfaction include educational benefits (Severt et al., 2007) and food content quality (Kim, Lee, & Love, 2009). Several studies have examined satisfaction of broad subsections, such as the venue, organization, and technical equipment; however, they have not been related back to attendee satisfaction overall. There have been additional studies that have investigated itemized satisfaction of specific areas, such as safety and security, cultural aspects, cleanliness, quality of exhibition (Bauer, Law, Tse, & Weber, 2008), but have also not related this back to general attendee satisfaction. Attendee satisfaction is an area that needs further study.

Attendee loyalty directly influences future attendance and the bottom line. Significant predictors of revisit intention include networking and travelability (Yoo & Zhao, 2010), educational benefits through satisfaction (Severt et al., 2007), overall satisfaction (J. Lee & Back, 2008), satisfaction with food service functions (Kim et al., 2009), program, networking, location, cost, and external activities (Tanford et al., 2012). Throughout the extant literature, there seems to be an apparent link between satisfaction and loyalty in a convention setting. However, there is still further research that needs to be conducted to analyze satisfaction with the same attributes.

**Technology in the Events Industry**

In the past decade there has been a steep rise in literature pertaining to sustainability and the influence of technology (Fenich et al., 2011; Fenich, Scott-Halsell, Ogbeide, & Hashimoto, 2014; Pearlman & Gates, 2010). Specifically, when discussing the influence of technology on the event industry, existing literature has focused on generational influences (Fenich et al., 2011; Fenich et al., 2014; K. Severt, Fjelstul, & Breiter, 2009). These studies have concentrated on the preferences of Generation Y, also known as the “millennial” generation.

Despite advances in technology and growing consumer dependence on electronics, the meeting and events industry has been slow to adopt IT advances for fear of cannibalization (Fenich et al., 2011; Pearlman & Gates, 2010). Meeting planners and show organizers believed that offering virtual meetings and events was a threat to their existing business. However, recent consensus opinion is that advancing technologies supplement and improve face to face events rather than replace them (Fenich et al., 2011; Pearlman & Gates, 2010). The influence of technology can be seen in the planning, promotion, and production of events. An industry professional must know how and when to utilize technology appropriately in all stages of the event process to maximize the attendee experience and return on investment (Schaefer & Erskine, 2012).

**Benefits of Utilizing Technology in Events**

There are several benefits to incorporating technology into planning a meeting or event. Event organizers have the ability to cut costs, organize materials online, incorporate potential attendees into the planning process, utilize surveys prior to the conference, and decrease lead times (Pearlman...
Planners and organizers can utilize technology through social media to engage prospects and customers in conversation. Technology also allows for online registrations, which are more efficient for both the attendee and planner (Pearlman & Gates, 2010; K. Severt et al., 2013). A 4-day exhibition can now become a 4-month-long promotional event. Through technology, planners and organizers can target specific markets, cut costs and increase revenues, track potential attendees, extend the brand, and broaden the brand community (Pearlman & Gates, 2010; K. Severt et al., 2013). Incorporating technology into the event production process removes the role of geography from the meeting experience. This allows planners to open the meeting to a global audience, increase ease of accessibility, increase levels of convenience, extend the company’s brand, have the material available at all times, increase scalability, increase tracking abilities, and allow for additional revenue sources (Fenich et al., 2011; K. Severt et al., 2013).

Technology can also be used to enhance the attendee experience. Speakers can utilize survey technology to post questions that attendees can answer with their cell phones or tablets. These results can be displayed in real time, which can foster attendee satisfaction and engagement (W. Lee, Xiong, & Hu, 2012). Companies can communicate with fans and followers directly, in addition to monitoring first-hand suggestions and criticisms from their attendee base (W. Lee et al., 2012). In terms of online conferences, benefits for the attendees include ease of accessibility, convenience, ability to multitask, the capability to display data in rich and insightful formats, and overall low costs of attending.

Barriers to Utilizing Technology in Events

The event industry has traditionally been slow to adopt IT solutions online, with many saying that this industry is “high touch” not “high tech” (Pearlman & Gates, 2010). Barriers in the planning process are mostly centered on a lack of information and training (Schaefer & Erskine, 2012). If planners and organizers are not trained or comfortable with event technology, then all aspects of the event could become less effective. Constant upgrades and changes make staying informed and trained in the latest technologies difficult (Schaefer & Erskine, 2012). An industry professional must know how and when to utilize technological methods to increase effectiveness and maximize return on investment. Unfortunately, planners do not always make informed decisions about which technology would be most appropriate for the task and desired objectives. Leaders may choose a more expensive and complex medium over a simple, yet effective, medium to appear trendy (Pearlman & Gates, 2010).

Theoretical Framework

Meetings are centered on sharing and learning content. Consequently, information processing and learning are important foundations for this research. These theories, when combined with technological theories, become the theoretical framework for this research.

Among technological theories, perhaps the best known is media richness theory (Daft & Lengel, 1986; Dennis, Fuller, & Valacich, 2008; Lengel & Daft, 1988). Based on the information processing theory, it was originally developed to describe and evaluate communication mediums within organizations (Daft & Lengel, 1986). The media richness theory was a breakthrough in an early technological age and has formed the basis for technology-related research in the convention industry (Arnfolk & Kogg, 2003 Détienne et al., 2013; Schaefer & Erskine, 2012). Media richness theory (Daft & Lengel, 1986) is most frequently used to rank and evaluate the richness of communication media such as phone calls, e-mails, and video conferencing. In short, media richness theory states that the more ambiguous and uncertain a task is, the richer the format of media needed. The most influential application of the media richness theory has been to assist decision makers in choosing a communication medium (Rice, 1993).

Media richness theory has been used as a basis in several convention-related articles (Arnfolk & Kogg, 2003; Détienne, et al., 2013; Schaefer & Erskine, 2012). This previous research has focused
on drivers and barriers for technology choices and factors that influence attendee's behavior and satisfaction. More recent research incorporating the media richness theory also includes user satisfaction and behavior. It was found that learners benefit from the use of richer media in courses containing more difficult content; however, learners achieved no significant benefit in satisfaction from the use of richer media in courses that contain more basic content (Sun & Cheng, 2007). Another recent study found that richer media was more closely associated with satisfaction and behavior (Otondo, Van Scotter, Allen, & Palvia, 2008). Additionally, richer media was associated more closely with satisfaction and behavior than simpler media (Otondo et al., 2008). Another study found that underlying sociopsychological factors influenced users to select a media based on satisfaction with the media rather than the effectiveness of information processing capability (Lim & Benbasat, 2000).

Beyond the technology, another integral theory to this research is the information processing theory. The information processing theory is based on the idea that humans process the information they receive rather than simply responding to stimuli (Lowyck, 2014). This idea compares the mind to a computer, which is responsible for analyzing information from the environment. The information processing system is a three-part process to include a sensory register, short-term memory, and long-term memory (Miller, 2003). The sensory register stores information long enough for unconscious processes to analyze it and determine whether it should be transferred into short-term memory or discarded. If the information makes it beyond the sensory register, it proceeds to short-term, or working memory (Van Merrienboer & Bruin, 2014). Working memory is believed to be the center of conscious thought and is where information from the environment and long-term memory is combined to solve problems. Short-term memory is limited in capacity and can only handle so much information at once (Van Merrienboer & Bruin, 2014). The third part of the process is long-term memory. This is the part of the brain that stores everything a person knows. Theorists have argued that the most important factor influencing learning is the active mental processing of information (Van Merrienboer & Bruin, 2014). There is very limited research specifically in conventions utilizing the information processing theory.

It is important to realize that both learning theories and technology are empty concepts when not connected to actors such as teachers, speakers, learners, event attendees, content developers, or instructional designers (Lowyck, 2014; Van Merrienboer & de Bruin, 2014). These participants are codesigners of their learning processes, which affect knowledge construction and information processing. Therefore, it is essential to derive data from event attendees to determine contributing factors when utilizing technology.

In terms of learning the material presented, information processing theory suggests that more difficult material to learn would take considerably more working memory and information could be lost. According to the media richness theory, more difficult material is better conveyed through richer media such as in person and online with moderator. More generalized material can be conveyed effectively across a variety of platforms. The field study in this research is a multiday conference with significantly more difficult material; however, the material is directly relevant to the attendees' careers. Therefore, it is hypothesized that this material is best presented in richer media. The experiment is a single-day conference with more elementary and generalized material that can apply to a variety of people. Therefore, it is hypothesized that this material can be presented effectively in a variety of different platforms.

Based on the literature review, media richness theory, and information processing theory, it is hypothesized that the three different platforms (face to face, online with moderator, and playback) will differ. Therefore, the following hypotheses are posited for this research:

**H1:** Attendee satisfaction differs as a function of event platform.

**H2:** Attendee loyalty differs as a function of event platform.

**H3:** Content retention differs as a function of event platform.

**Methodology**

This research is exploratory and analyzes feedback from a varied background of meeting attendees.
Participants did not know there were other platform options. There were 33 people recruited for each of the two online groups. An incentive of $75 or $50 was provided by the research company for participation. The online with moderator participants received $75 due to the specific time and date they had to log in; whereas the playback group received $50 because they could log in at their leisure during a week-long time period. The online with moderator session had 25 people log in and complete the follow-up survey. The playback session had 30 people log in to complete the follow-up survey. These samples are sufficient to identify large effects at a 0.05 and 0.01 level (Cohen, 1992).

Study 2: Field Study

The field study was comprised of members of an intact group who attended their annual meeting and were surveyed after the meeting ended. This meeting was targeted for this study as they have offered all three of the platforms being studied for at least the past 3 years and continually register over 1,000 attendees overall. This study utilized an online survey in Qualtrics, an online survey tool, sent to each of the three platform groups. Although each group was exposed to a different platform, the content was identical across all segments. The survey link was sent to the convention attendees and those who logged on remotely 24 hr after the conference. Four sessions from the conference were selected for analysis across the three platforms. The four sessions had 396 attendees attend live on site; therefore, 396 surveys were e-mailed to participants and 67 were completed. This equates to a 16.9% response rate. Of the 168 conference attendees who logged into the web portal while the conference was underway, 168 e-mails were sent and 41 surveys were completed. This equates to a response rate of 24.4%. Over the course of 3 months, attendees who missed the live conference and online with moderator portion could log onto the web portal and view the content at any time they chose (similar to a YouTube video). Those participants received the survey 24 hr after viewing the content. For this platform, 68 people completed the session video, 68 surveys were sent, and 30 were completed. This equates to a response rate of 44.1%. Overall, there were 632 e-mails sent and 138 surveys completed.
for a response rate of 21.8%. These samples are sufficient to identify large effects at a 0.05 and 0.01 level (Cohen, 1992).

Instrument

There is one independent variable (platform) and three dependent variables (satisfaction, loyalty, and content retention). The independent variable has three treatment levels. The first platform is labeled as “in person.” This is defined as a live face to face meeting with a live speaker who delivers content. The second platform is “online with moderator.” This is defined as a live face to face meeting with a live speaker who delivers content, which is captured in real time and broadcast over the Internet to an attendee who is not physically at the event. This attendee views the meeting live from a computer and has interaction with a live moderator while viewing the content. The third platform is “playback,” which is sometimes referred to as session capture in the industry. This is defined as a live face to face meeting with a live speaker who delivers content, which is recorded and played at a later time for an attendee to view on a computer at any time. The experimental subjects did not choose their platform, they were randomly assigned and did not know that other platforms existed. The field study participants self-selected the platform they wanted to attend, but did not know about this research until after the conference was over.

The overall survey consisted of 55 questions and was distributed electronically 24 hr after the conclusion of the meeting or playback. This includes established loyalty and satisfaction scales containing four questions each. Loyalty was rated on a 7-point Likert scale and included items related to positive word of mouth, recommendation intention, encouraging friends to attend, and intention to attend the event in the future (Zeithaml, Berry, & Parasuraman, 1996). Satisfaction was rated on a 7-point Likert scale with questions adapted from Oliver (1980) to reflect the event context. These items were adapted and include: “I am satisfied with my decision to visit this conference,” “My choice to visit this conference was a wise one,” “I think I did the right thing when I decided to attend this conference,” and “I am happy with my decision to attend this conference.”

Content retention can be subdivided into recall and recognition. Recall (unaided) requires that a person retrieve information from memory without assistance from researcher-provided cues (Unsworth & Brewer, 2009). This is typically tested with fill in the blank questions. Recognition (aided) requires that relevant stimuli be identified, usually from among a list containing both correct and distractor items (Unsworth & Brewer, 2009). This is typically tested through multiple-choice questions. For each speaker, attendees were asked questions directly relating to the sessions they attended. There were two multiple choice and two fill in the blank questions for each speaker. In the field study, the attendees selected which speaker sessions they attended and were only shown the content retention questions based on their speaker selections. In the experimental study, every attendee saw every speaker and answered all content questions. The content retention questions were graded as either correct or incorrect and converted into a percentage. The survey concluded with demographic items.

Results

Study 1: Experiment

Sample Characteristics. The demographic characteristics of the sample are shown in Table 1, divided into the three experimental groups. The largest noticeable difference is the age and education levels between the in-person group and the two online sessions. The in-person group had 80% of its attendees aged below 24, whereas the two online groups only had 3.3% of attendees in this age group. The in-person group had lower completed education levels than the online groups, with the largest portion having some college, as compared to the online groups, which had largely received a Bachelor’s degree. One anomaly is the large presence of African American attendees (26.7%) in the playback group. This is different than the online with moderator group, despite the fact that random assignment should balance individual differences.

Satisfaction and Loyalty. Factor analysis again validated the established satisfaction scale (Oliver, 1980) and loyalty scale (Zeithaml et al., 1996), both with a Chronbach’s alpha of 0.947. This indicates...
There is no significant effect for gender \( F(2, 102) = 2.701, p = 0.072 \) or income \( F(2, 89) = 1.595, p = 0.209 \), so there is independence of the covariate. However, there is a significant effect of age \( F(2, 102) = 51.029, p < 0.001 \) and education \( F(2, 102) = 1.595, p < 0.001 \), which violates the assumption of independence. There is no significant interaction between the covariates and the independent variable for either dependent variable; therefore, this assumption is upheld.

There was a significant multivariate effect found across the platforms for the combined dependent variables of satisfaction and loyalty; \( Pillai = 0.147 \) \[ F(4, 174) = 3.455, p = 0.01 \]. The income covariate was also significant; \( Pillai = 0.116 \) \[ F(2, 86) = 5.656, p = 0.005 \]. However, the gender covariate was not significant, \( p = 0.770 \). It would appear that the income covariate reduced some of the error high internal reliability. The items in these scales were averaged to derive mean scores as recommended by Hair, Black, Babin, and Anderson (2013). The satisfaction mean score was 5.68 and the loyalty mean score was 5.54 on a scale from 1 to 7, indicating high levels of satisfaction and loyalty with the conference.

Hypotheses 1 and 2 examine if attendee satisfaction and loyalty are equal across the three platforms. This was analyzed as a multivariate analysis of covariance (MANCOVA) with age, gender, education, and income as covariates. The effect of including a covariate can serve to reduce error variance, but can also be used to check that outside variables are not confounding the actual observed outcome (Hair et al., 2013). Age, gender, education, and income were chosen as covariates because differences were observed across groups.

### Table 1
Sociodemographic Profile of the Experiment

<table>
<thead>
<tr>
<th></th>
<th>In Person (n = 50) [Count (%)]</th>
<th>Online w/Moderator (n = 25) [Count (%)]</th>
<th>Playback (n = 30) [Count (%)]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18–20</td>
<td>13 (26.0)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>21–24</td>
<td>27 (54.0)</td>
<td>0 (0.0)</td>
<td>1 (3.3)</td>
</tr>
<tr>
<td>25–34</td>
<td>5 (10.0)</td>
<td>8 (32.0)</td>
<td>8 (26.7)</td>
</tr>
<tr>
<td>35–44</td>
<td>2 (4.0)</td>
<td>2 (8.0)</td>
<td>10 (33.3)</td>
</tr>
<tr>
<td>45–54</td>
<td>2 (4.0)</td>
<td>9 (36.0)</td>
<td>5 (16.7)</td>
</tr>
<tr>
<td>55 or older</td>
<td>1 (2.0)</td>
<td>6 (24.0)</td>
<td>6 (20.0)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17 (34.0)</td>
<td>14 (56.0)</td>
<td>17 (56.7)</td>
</tr>
<tr>
<td>Female</td>
<td>33 (66.0)</td>
<td>11 (44.0)</td>
<td>13 (43.3)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school</td>
<td>5 (10.0)</td>
<td>1 (4.0)</td>
<td>1 (3.3)</td>
</tr>
<tr>
<td>Some college</td>
<td>20 (40.0)</td>
<td>5 (20.0)</td>
<td>5 (16.7)</td>
</tr>
<tr>
<td>Associates</td>
<td>11 (22.0)</td>
<td>0 (0.0)</td>
<td>2 (6.7)</td>
</tr>
<tr>
<td>Bachelors</td>
<td>13 (26.0)</td>
<td>13 (52.0)</td>
<td>14 (46.7)</td>
</tr>
<tr>
<td>Graduate</td>
<td>1 (2.0)</td>
<td>6 (24.0)</td>
<td>8 (26.7)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>1 (2.1)</td>
<td>1 (4.2)</td>
<td>8 (26.7)</td>
</tr>
<tr>
<td>Asian</td>
<td>15 (31.3)</td>
<td>0 (0.0)</td>
<td>2 (6.7)</td>
</tr>
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<td>Hispanic</td>
<td>9 (18.8)</td>
<td>3 (12.5)</td>
<td>4 (13.3)</td>
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<td>Caucasian</td>
<td>20 (41.7)</td>
<td>2 (83.3)</td>
<td>14 (46.7)</td>
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<tr>
<td>Other</td>
<td>3 (6.3)</td>
<td>0 (0.0)</td>
<td>2 (6.7)</td>
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<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $50,000</td>
<td>19 (50.0)</td>
<td>2 (8.3)</td>
<td>4 (13.3)</td>
</tr>
<tr>
<td>$50,001–$100,000</td>
<td>8 (21.1)</td>
<td>16 (66.7)</td>
<td>12 (40.0)</td>
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<td>$100,0001–$150,000</td>
<td>6 (15.8)</td>
<td>4 (16.7)</td>
<td>9 (30.0)</td>
</tr>
<tr>
<td>$150,001–$200,000</td>
<td>0 (0.0)</td>
<td>1 (4.2)</td>
<td>4 (13.3)</td>
</tr>
<tr>
<td>$200,001–$250,000</td>
<td>3 (7.9)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Above $250,000</td>
<td>2 (5.3)</td>
<td>1 (4.2)</td>
<td>1 (3.3)</td>
</tr>
</tbody>
</table>

*Note. n represents the number of respondents who completed the demographic profile information; some attendees chose “prefer not to answer” or exited the survey without answering these questions.*
set at $p < 0.05$ was used. The ANOVA indicated a significant main effect for content recall [$F(2, 104) = 11.493, p < 0.001$]. The $\eta^2 = 0.195$ indicates that approximately 19.5% of the variance in dependent variables is associated with the type of platform. This is considered a large effect (Cohen, 1992, 2003).

Because the assumption of homogeneity of variance was not met, post hoc tests using the Games–Howell modification of Tukey’s HSD test are utilized as recommended for situations of unequal sample sizes and unequal or unknown variances. As can be seen from the results (Table 3), there is a significant difference between both the in-person group (45% correct) and the playback group (20% correct), whereas the online with moderator group (33% correct) was not significantly different from either online group (Table 2). The findings indicate that the attendees of the in-person group remembered significantly more unaided content than the playback group, supporting Hypothesis 3.

The ANOVA indicated a significant main effect for platform on content retention, as measured using multiple choice questions [$F(2, 104) = 16.389, p < 0.001$]. The $\eta^2 = 0.243$ indicates that approximately 24.3% of the variance in dependent variables is associated with the type of platform. This is considered a large effect (Cohen, 1992, 2003).

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### Table 2

<table>
<thead>
<tr>
<th>Platform</th>
<th>In Person</th>
<th>Playback</th>
<th>Online w/Moderator</th>
<th>$F$</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Satisfaction</strong></td>
<td>5.676</td>
<td>6.120</td>
<td>5.144</td>
<td>5.058**</td>
<td>0.104</td>
</tr>
<tr>
<td><strong>Loyalty</strong></td>
<td>5.595</td>
<td>6.048</td>
<td>4.811</td>
<td>7.122***</td>
<td>0.141</td>
</tr>
</tbody>
</table>

*Note. Means without common subscripts are significantly different using Bonferroni post hoc test.*

**$p < 0.01$, ***$p < 0.001$.**

### Table 3

<table>
<thead>
<tr>
<th>Retention</th>
<th>In Person</th>
<th>Online w/Moderator</th>
<th>Playback</th>
<th>$F$</th>
<th>$\eta^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recall</strong></td>
<td>0.45</td>
<td>0.33</td>
<td>0.20</td>
<td>11.493***</td>
<td>0.195</td>
</tr>
<tr>
<td><strong>Recognition</strong></td>
<td>0.72</td>
<td>0.56</td>
<td>0.48</td>
<td>16.389***</td>
<td>0.243</td>
</tr>
</tbody>
</table>

*Note. Means without common subscripts are significantly different using Tukey’s HSD test (Games–Howell modification for recall).*

***$p < 0.001$.***
Because normality and homogeneity of variance were upheld in the recognition scale, a Tukey HSD post hoc was utilized. It was found that the in-person platform (72% correct) was significantly higher than the online with moderator session (56% correct) and the playback session (48% correct), whereas the latter two groups did not differ significantly from each other (Table 3). This means that the attendees of the in-person event remembered significantly more aided content than the playback and online with moderator groups, supporting Hypothesis 3.

Study 2: Field Study

Sample Characteristics. A demographic profile of the sample is provided in Table 4, broken down by the three platform groups. The largest noticeable difference between groups was in gender between the sessions involving engagement (in person and online with a moderator) and the playback session. Although the engagement sessions are roughly split between male and female, the playback group consisted of 90.9% males and 9.1% females. Whereas the two online platforms consisted solely of attendees who had attained at least a bachelor’s degree, the in-person group contained 21.1% of respondents who had only achieved high school, some college, or a 2-year degree (associate’s degree). This could be the result of educational institutions encouraging the in-person meeting for networking purposes. The in-person and online with moderator sessions had a large percentage of top income levels (above $250,001 gross income per year); however, the playback group did not have a single attendee above $250,001.

Satisfaction and Loyalty. The factor analysis validated the established satisfaction scale (Oliver, 1980) and loyalty scale (Zeithaml et al., 1996) with
variance. The univariate outcomes show that satisfaction \( F(2, 79) = 13.870, p < 0.001 \) and loyalty \( F(2, 79) = 8.795, p < 0.001 \) differed significantly across the platforms after applying the income covariate. Post hoc Bonferroni analyses of the univariate outcomes adjusted for income showed that the playback attendees were significantly less satisfied and less loyal to the conference than the in-person attendees \( (p < 0.001) \) and the online with moderator attendees \( (p < 0.001) \). In-person and online with moderator groups were not significantly different for either dependent variable. These findings are displayed in Table 5. The differences in satisfaction and loyalty between platforms support Hypotheses 1 and 2.

**Overall Content Retention.** To assess the differences in content retention across platforms, attendees were quizzed on the content from the meeting. This content was broken down into two recognition questions (multiple choice) and two recall questions (fill in the blank answers) per speaker. Four sessions were selected for analysis, which would total eight potential recall and eight potential recognition questions per attendee. However, unexpectedly, due to the variety of session options occurring at one time, nearly all of the attendees for the field study only attended one of the four sessions being analyzed. With low outcome possibilities \( (0, 1, \) or 2 correct) for each content portion, these recall and recognition sections were combined for an overall analysis on content retention. This is true in the field study only. The ANOVA indicated a significant main effect for platform \( F(2, 138) = 6.116, p = 0.003 \). The \( \eta^2 = 0.083 \) Chronbach’s alpha of 0.937 and 0.962, respectively. This indicates high internal reliability. The items in these scales were averaged to derive mean scores as recommended by Hair et al. (2013). The satisfaction mean score was 6.10 and the loyalty mean score was 6.19 on a scale from 1 to 7, indicating high levels of satisfaction and loyalty with the conference.

Hypotheses 1 and 2 examine if attendee satisfaction and loyalty are equal across the three platforms. This was analyzed as a multivariate analysis of covariance (MANCOVA) controlling for age, gender, education, and income. There was no significant effect of age \( F(2, 114) = 0.461, p = 0.632 \) or income \( F(2, 81) = 1.674, p = 0.194 \), so there is independence of the covariate. However, there was a significant effect for gender \( F(2, 110) = 7.625, p = 0.001 \) and education \( F(2, 114) = 11.476, p < 0.001 \), which violates the assumption of independence. By including age and income as covariates in the model, this may help reduce error variance. To satisfy the assumption that correlation between satisfaction and loyalty versus age and income do not differ across the platforms, the interaction terms should be nonsignificant. There is no significant interaction between the covariates and the independent variable for either dependent variable; therefore, this assumption is upheld. All additional assumptions were upheld.

There was a highly significant multivariate effect across the platforms for the combined dependent variables of satisfaction and loyalty; \( \text{Pillai} = 0.301 \) \( F(4, 158) = 7.009, p < 0.001 \). The income covariate was significant; \( \text{Pillai} = 0.078 \) \( F(2, 78) = 3.296, p = 0.042 \). However, the age covariate was not significant, \( p = 0.693 \). It would appear that the income covariate reduced some of the error variance. The univariate outcomes show that satisfaction \( F(2, 79) = 13.870, p < 0.001 \) and loyalty \( F(2, 79) = 8.795, p < 0.001 \) differed significantly across the platforms after applying the income covariate. Post hoc Bonferroni analyses of the univariate outcomes adjusted for income showed that the playback attendees were significantly less satisfied and less loyal to the conference than the in-person attendees \( (p < 0.001) \) and the online with moderator attendees \( (p < 0.001) \). In-person and online with moderator groups were not significantly different for either dependent variable. These findings are displayed in Table 5. The differences in satisfaction and loyalty between platforms support Hypotheses 1 and 2.

### Table 5

**Effect of Platform on Loyalty and Satisfaction (Field Study)**

<table>
<thead>
<tr>
<th>Platform</th>
<th>In Person</th>
<th>Playback</th>
<th>Online w/Moderator</th>
<th>( F )</th>
<th>( \eta^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>6.289a</td>
<td>5.292b</td>
<td>6.331a</td>
<td>32.276***</td>
<td>0.364</td>
</tr>
<tr>
<td>Loyalty</td>
<td>6.103a</td>
<td>4.635b</td>
<td>6.482a</td>
<td>13.169***</td>
<td>0.189</td>
</tr>
</tbody>
</table>

*Note.* Means without common subscripts are significantly different using Bonferroni post hoc test.

*** \( p < 0.001 \).
indicates that approximately 8.3% of the variance in the dependent variable is associated with the choice of platform. This is considered a medium-effect size (Cohen, 1992, 2003). A Tukey post hoc revealed that the in-person platform (53% correct) and online with moderator (57% correct) platform were both significantly higher than the playback session (35% correct) (Table 6). It is interesting to note that the online with moderator platform was had the highest content retention and did not differ significantly from in-person attendance. The finding of differences in content across platforms supports Hypothesis 3.

Discussion

This research provides important insight into the effects of technology on attendee outcomes using different platforms within a single event. Its significance is enhanced by the use of both an intact group and a controlled experiment. In the field study, the in-person and online with moderator attendees indicated higher levels of satisfaction and loyalty than attendees in the playback meeting. This could be due to the engagement that attendees have with each other and with the staff. The attendees could feel like they are truly part of the event, even if logging in from a remote location. One advantage of the online with moderator platform is that attendees could still ask questions to the moderators that could be answered from the live speakers, whereas the playback attendees did not have this opportunity. In the experiment, the results were different than the field study. The playback meeting produced higher levels of satisfaction and loyalty than the online with moderator meeting, whereas the in-person meeting did not differ from either online platform.

This difference between the field study and the experiment has intriguing implications. There are several potential reasons for the contradictory results. One reason could be attributed to sociodemographic variables such as age and education levels, which varied between the field study and the experiment. The experimental group was younger, had less education overall, and less income. As stated in previous generational literature, younger generations tend to prefer short meetings with no breaks, have short attention spans, and like to multitask (Welch, 2007). These characteristics would lend more to the playback meeting.

These respective results for each platform tie directly into media richness theory and media use (Dennis & Valacich, 1993). Typically, richer media are better suited for nonroutine messages and messages that are difficult to understand. In the field study, the attendees were trying to understand more difficult material that is specifically relevant to their work. This would warrant more direct conversation back and forth and would require a more advanced medium, such as online with moderator or face to face. The experiment presentations were simple lectures about broad topics; therefore, a simpler medium such as playback could have been more suitable.

Another factor to consider is the inherent motivation for attending the meeting. In the field study, all of the participants were motivated by a desire to learn about their profession and wanted to engage with other professionals in their area. In the experimental study, participants were recruited and probably not interested in networking with other attendees. This could affect attendee satisfaction.

Content Retention

Content retention was a combined variable in the field study (recall and recognition) whereas these were separated in the experimental study. In the field study, participants for the in-person and online

<table>
<thead>
<tr>
<th>Table 6</th>
<th>Content Retention by Platform Choice (Field Study)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In Person</td>
<td>Online w/Moderator</td>
</tr>
<tr>
<td>Percent retention</td>
<td>0.53a</td>
</tr>
</tbody>
</table>

Note. Means without common subscripts are significantly different using Tukey’s HSD test. **p < 0.005.
with moderator meetings remembered more content than those who attended the playback meeting. The finding that the online with moderator platform had the highest retention should be investigated further. In a modern civilization where people can be on their phones or laptops browsing the Internet during a face to face session, it is possible that attendees are more engaged and learn more when committed to logging in and interacting with someone live. The attendees could be paying more attention in this medium than even face to face.

During the experiment, content recall (unaided) was higher for the in-person meeting than the playback meeting. This is notable as unaided recall often requires the attendee to draw on different portions of memory than content recognition. An attendee can tie together various environmental stimuli to aid in answering the question correctly. Overall attention levels could be affected by factors such as the temperature of the room, lighting levels, people in the room, noise levels, and seating options available. Although not directly comparable, these results are similar to the field study results in that the playback group scored the lowest in terms of content retention.

During the experiment, content recognition (aided) was significantly higher for the in-person meeting than both the online with moderator and the playback meeting. This could be attributed to socio-demographic variables such as age and education levels between the in-person group and the online groups. The experimental in-person group in particular was younger and was currently attending or more recently graduated college compared to the other two experimental groups. These attendees could be more accustomed to the test-taking mentality of sitting in a classroom style meeting and taking quizzes on the lecture.

The playback group received the lowest amount of aided and unaided questions correct in both studies. This could be due to the lack of engagement with other attendees or the moderator, which would affect the attendee’s ability to develop a meaningful connection with the material. Another reason could be that the attendees in the playback group were not focusing their attention on the video 100%. These attendees could have been multitasking and doing other things such as e-mail, social media, or completing tasks around the house while simply listening to the video. These results have important implications for industries where continuing education and training are vital for certifications and are administered online.

**Implications**

**Theoretical Implications**

This research contributes to event literature by identifying how platform choice can affect satisfaction, loyalty, and content retention. This contribution extends to other fields such as education, technology, psychology, and business, which have completed research examining online platforms and a company’s expected return on investment. Although there is existing research examining in-person meetings and research examining online platforms, the body of literature examining how these platforms affect specific variables in the same study is extremely limited. The current research examined various indices with respect to different platforms through both an experimental study to evaluate cause and effect and an intact field study to establish real world applicability.

Although trade literature sometimes discusses the importance of content in meetings, it tends to be overlooked in academic research. In this research, both the field study and the experimental study followed the exact same layout and procedure; however, the results in terms of satisfaction, loyalty, and content retention were different between the two studies. In both studies, content retention was a major factor in differences between the platforms. This can be explained with media richness theory and information processing theory, thus establishing a theoretical foundation for a practical issue.

This research supports findings of Sun and Chen (2007) on media richness effects while adding the dynamic of face to face interactions. As the content of the meeting became increasingly difficult, the attendees were more satisfied and loyal when richer media was utilized. Both platforms that involved interaction scored higher when presented with difficult material. The playback session was preferred when it came to easier material. Media richness theory explains why, even in identical situations and platforms with similar attendees and attendee backgrounds, the overall results differed depending...
on the difficulty of the content. This research has implications for how media richness theory should be examined in the future when analyzing events. In terms of conferences, content difficulty should be analyzed as an antecedent to media choice.

With a focus on content, information processing theory become especially important. Each attendee has different learning abilities, capacities, and experiences; therefore, planning effectively for attendees is difficult to predict or control by outside parties. One way to coordinate this is to limit session attendance to particular attendees. Several conferences have recommended “tracks” that would be most beneficial to particular attendees. For example, a medical conference could attract attendees in the form of doctors, nurses, assistants, medical providers, suppliers, insurance companies, etc. Attendees who attend a session targeted to a specific domain will not be satisfied and might feel fatigue as they try to process information that may not be relevant to them. Sessions could also be broken down by experience level and the difficulty of the material could be stated. Several conferences that require continuing education/medical credit are starting to list the learning objectives of each session in the program materials. All of these initiatives can help the attendee make a better decision of which sessions to attend and can help with information processing.

Though understanding how these theories directly affect the research presented with substantial practical implications, this research sets a foundation theoretically in these areas. There is extremely limited research discussing information processing in the meetings area. With multiday conferences sometimes containing hundreds of sessions, the importance of quality and quantity of content becomes critical. This research is an essential first step in developing understanding and guidelines for meetings and developing theories specifically relevant to the event industry.

Practical Implications

Within a global market, event planners are often required to adjust to new technology, competition within the industry, economic variability, and changing attendee expectations. This research has important implications for improving the quality of meeting attendees’ experiences while achieving a set objective. If the main objective of the meeting is to relay information that the attendees will remember, then a playback option would not be the ideal platform. If the main objective of the meeting is networking, then in-person meetings should be utilized. The platform choice ultimately depends on the objective; however, many objectives can be handled by offering a variety of different platforms.

This study has implications for other event-related areas. One example is exhibitors. In-person meetings and online with moderator meetings generally have similar results in terms of satisfaction, loyalty, and content retention. In-person meetings that have exhibit halls have traditionally brought in additional revenue with sponsorships and exhibitor fees. These conferences provide face to face exposure for exhibitors and can charge a premium for guaranteed access to their attendees. Exhibitors and sponsors will have to examine how best to capitalize on marketing dollars in online platforms without having a negative impact on the online attendees’ overall experience. In some industries, such as the medical field, there may be governmental restrictions on what exhibitors and sponsors can support. These restrictions need to be taken into consideration when deciding on platform choices.

As the use of online platforms continues to increase, it is even more important to ensure that the correct video cameras and audio recording devices are used to ensure proper streaming and recording. Because most speakers only give their presentation one time at a conference, it is vital that these companies are able to capture this content effectively with maximum quality. The success of an event does not depend only on the event planner, but is heavily contingent on the level of satisfaction of the end users. As such, it is recommended that the audio-visual companies keep in touch with end users to understand how they feel about their services. If the company is not able to contact the end user directly, they can require that meeting planners provide feedback or summaries of the evaluations utilized after the event occurs.

As companies are moving away from in-person training to online web portals for management to take at their leisure, the content retention aspect
becomes even more important. Is it better to bring everyone together or have them log in at a specific time where the attendee retains more information or allow them to watch a prerecorded video at any given point? In an educational setting, online classes should be reconsidered in terms of streaming versus prerecorded sessions.

Limitations and Future Research

The field study involved a specific conference and may not be generalizable to all conferences. The limited sample size and uneven proportion of males versus females in the playback portion may make this section not generalizable to other target markets. Because this was an intact group of conference attendees and not all attendees completed the survey, there is a potential for nonresponse bias. In the experimental study, attendees were recruited and paid for their time, so the motivation to attend the meeting was not inherent. Because attendees did not pay to attend the conference and it had no direct benefit to their professions, they may not have been as invested in learning the material. Although the experiment was conducted in a conference space and conducted like an actual conference, the participants knew they were being studied and may have acted differently than they would normally. The sampling design was not ideal in the experimental study because the in-group meeting was convenience sampling and the two online platforms were recruited and randomly assigned by an outside research company.

A major strength of this research is its dual approach of establishing cause and effect through an experimental study while establishing generalizability with a field study. Future research should examine these and other variables across platforms within the events in a wide variety of fields and with different sociodemographic traits of attendees. This research design can become a foundation for future studies. These platforms and variables should be studied in both domestic and international contexts. If the same approach is utilized across multiple industries and with different attendee makeup, a foundational level can be established that will help drive new theoretical and practical contributions to meetings and events.

With society’s ever-changing sociodemographics and technological advancements, it is important to study ways in which technology can be used as a bridge to engage attendees and foster positive interactions and perceptions of event attendees and staff. Further research should investigate the role that various forms of technology, or the failure of technology, play in satisfaction, loyalty, and content retention. Although three platforms were investigated in this research, other platforms should be analyzed, such as full 3D immersion technology (i.e., SecondLife) and simple audio conferencing.

The goal of this research was to gain a better understanding of how alternate platforms can affect event effectiveness. Although each meeting varies in terms of objectives and content, clear differences between platforms were found. This research is relevant to every educational-based session, whether it is in education, industry, or meeting specific. Whether someone is watching videos on YouTube, going to college, attending a meeting, or planning a meeting or event, the influence of technology cannot be ignored.

References


